

## **TITLE 24 PROPOSED PUBLIC POOL REGULATIONS - JULY 2003**

The Department of Health Services (DHS) is working with the California Conference of Directors of Environmental Health to revise the existing public swimming pool regulations. These new regulations will require the public pools in California to meet current health and safety practices, standards, and operational requirements. Inquires about these draft regulations should be directed to the Environmental Health Services Section, P.O. Box 942734, MS 7404, Sacramento, CA 94234-7320, Attention Dave Quinton.

# CALIFORNIA CODE OF REGULATIONS

## TITLE 24

### Chapter 31B

#### ARTICLE 1 - PUBLIC POOLS

##### ~~GENERAL~~

##### **Section 3101B - Scope.**

The provisions of this Chapter shall apply to the construction, installation, renovation, alteration, addition, relocation, replacement or use of any public ~~swimming~~ pool, ~~and~~ to its appurtenant ~~auxiliary~~ ancillary ~~areas and~~ facilities and to its mechanical equipment and related piping.

**Notes: 1:** Examples of public pools include ~~those located in~~ the following: commercial buildings pools, hotel pools, motel pools, resort pools, ~~automobile and~~, trailer park or mobile home park pools, ~~automobile court, mobile home park~~, campground pools, apartment house pools, condominium pools, townhouse pools, homeowner association pools, club pools, community building or area pools, public or private school pools, ~~gymnasium, and health establishment~~, health establishment pools, water park pools, swim school pools, medical facility pools, bed and breakfast pools and licensed day care pools.

**Notes 2:** See the California Energy Code, Part 6, for additional ~~swimming~~ public pool standards.

## **Section 3102B - Definitions.**

### Abbreviations (technical):

"ANSI" means American National Standards Institute.

"APHA" means American Public Health Association.

"ASTM" means American Society for Testing Materials.

"fps" means feet per second.

"gpm" means gallons per minute.

"NSF" means NSF International.

"NSPF" means National Swimming Pool Foundation

"NSPI" - means National Spa and Pool Institute.

"ppm" - means parts per million.

~~For the purposes of this Chapter, the following terms shall have the meanings indicated:~~

### Definitions:

**ACTIVITY POOL** means a pool which features recreational water activities incorporating one or more of the following: ladders, climbable bars, ropes, chutes, bubblers, fountains or other similar devices.

**AIR GAP** means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying water or waste to a tank, plumbing fixture receptor or other device and the flood level rim of the receptacle.

**AUXILIARY ANCILLARY AREA FACILITY** ~~is a public dressing, locker, shower or toilet area or building space intended to be used by bathers~~ means any area used in conjunction with, or operation of, a pool such as public dressing, locker, shower or bathroom areas, equipment room, pool deck area or building space intended to be used by pool users.

**BACKWASH** is means the process of reversing the flow of water through the filter to thoroughly cleansing clean the filter media and/or elements and the contents of the filter vessel.

~~**BATHER** is a person using a pool and adjoining deck areas for the purpose of water sports such as diving, swimming, wading, or related activities.~~

**CHILDREN'S POOL/RIDE** means an activity pool, flume ride or other slide attraction at a Recreational Water Park designed primarily for use by children.

~~**CLEAN POOL WATER** is pool water that is free of dirt, oils, scum, algae, floating materials, or other visible organic and inorganic materials that would sully the water.~~

~~**CLEAR POOL WATER** is pool water that is free from cloudiness and is transparent.~~

**CONTRASTING COLOR** means two colors having a difference in light reflectance value of at least 55%.

~~**CORROSION-RESISTANT** is capable of maintaining original surface characteristics under the prolonged influence of the use environment.~~ means the ability of a material to maintain its original surface characteristics under the prolonged influence of the use in its environment.

~~**DECK** is an area surrounding a pool which is specifically constructed or installed for use by bathers.~~

**DESIGN CAPACITY** means the established performance rating of a type of pool equipment derived from the manufacturer's specifications in accordance with established performance standards.

**DIATOMACEOUS EARTH** means a filtering media consisting of fossilized diatoms.

**DISCHARGE SECTION** means the end of a modular flume or chute assembly at a landing pool.

**DRAIN** is a fitting or fixture, usually at or near the bottom of a pool, through which water leaves the pool normally to the recirculation pump.

**DURABLE** means capable of withstanding chemical, static, and dynamic and earth stresses without undergoing decay or deterioration under normal operational use.

**EASILY CLEANABLE** means a characteristic of a surface or material that allows removal of dirt, stains or residue by normal cleaning methods.

**EFFECTIVE PARTICLE SIZE** is means the theoretical size of sieve (in mm) that will pass 10 percent by weight of the sand.

**ENFORCING AGENCY** means the ~~H~~health ~~O~~fficer or ~~D~~irector of ~~E~~nvironmental ~~H~~health or ~~their~~ his or her designated ~~Registered sanitarian representative~~ Environmental Health Specialists or Environmental Health Specialist Trainees.

**ENGINEER** means either a California licensed civil engineer or a California Registered Architect.

**ENTRY POOL** means an activity pool that is provided at the entrance of a waterslide or inner tube ride.

**EQUIPMENT AREA** is means an area used ~~for pool~~ to house recirculation and ~~purification~~ disinfection equipment and their related ~~piping~~ appurtenances.

**FLOW RIDER** - means an activity pool that uses wave sheet technology for body boarding or body surfing activity.

**FLUME** means a trough-like or tubular structure used as a waterslide which directs the path of travel and rate of descent of a rider.

**FREEBOARD** means the vertical dimension between the top of the sand filter layer and the distribution piping of a sand type filter.

**HANDHOLD** means a structure located at or above the water line around the perimeter of the pool wall which provides a physical means for a pool user to grasp the pool side.

**INLET** is means a fitting or fixture through which ~~circulation~~ water enters the pool.

**INNER TUBE RIDE** means a gravity flow water attraction at a Recreational Water Park designed to convey riders on tube-like devices through a series of chutes, channels, flumes or pools.

**INTERACTIVE WATER FOUNTAIN/FEATURE** means a special purpose pool which has no ponding of water in the splash zone and consists of an underground reservoir with a recirculation system from which water is directed through sprays, jets or other means for contact with pool users.

**INTERMEDIATE POOL** means any section of quiescent water flow between the entry and landing pools in activity pools that use a series of pools.

**LADDER** is means a series of vertically separate treads or rungs either connected by vertical rail members or independently fastened to an adjacent vertical pool wall.

**LANDING POOL** means an activity pool at the end of a flume that is to receive the rider of an attraction.

**LIVING UNIT** means any building or portion thereof which contains living facilities, including provisions for sleeping.

**MAIN DRAIN** means the suction outlets located at the deepest part of the pool.

**MAXIMUM POOL USER LOAD** means the maximum number of persons allowed in a pool at any one time.

**MEDICAL POOL** ~~is~~ means a special purpose pool used by a ~~state~~ licensed ~~recognized~~ medical institution engaged in the healing arts under the direct supervision of a State licensed medical professional personnel for treatment of the infirm.

**OUTLET** means a fitting or fixture through which water is removed from the pool.

**OZONE CONTACT CONCENTRATION** means the amount of ozone that is dissolved in the pool water.

**PERIMETER OVERFLOW SYSTEM** ~~is~~ means ~~the~~ a system which includes perimeter-type overflow gutters, ~~surface skimmers,~~ surge capacity ~~or collector tanks,~~ other similar surface water collective system components and their interconnecting piping.

**POOL** ~~is a constructed or prefabricated artificial basin, chamber or tank intended to be used primarily by bathers, and not for cleaning of the body or for individual therapeutic use~~ means a public pool.

**POOL AREA** means the area within the required pool enclosure.

**POOL LOAD** means the peak number of pool users per hour for individual water attractions at a Recreational Water Park.

**POOL USER** means a person using a pool and adjoining deck areas for the purpose of water activity such as swimming, wading, diving or other water related activities.

**POOL VOLUME** ~~is the amount of water expressed in gallons (liters), that a pool holds when filled.~~

**PRIVATE POOL** ~~is any constructed pool, permanent or portable, which is intended for non-commercial use as a swimming pool by not more than three owner families and their guests.~~

Note: ~~A single family residence is a Group R, Division 3 Occupancy~~

**PUBLIC POOL** ~~is a pool other than a private pool~~ means a wholly artificial basin, chamber or tank, constructed or prefabricated with impervious bottoms and sides that is used, or intended to be used for recreational swimming, diving or bathing but does not include baths where the main purpose is the cleaning of the body, individual therapeutic tubs, or pools intended for non-commercial use as a pool by the occupants of not more than 3 dwelling or living units.

**RADIUS OF CURVATURE** means the radius arc, which denotes the curved surface from the point of departure from the springline (vertical sidewall) of the pool to the pool bottom.

**READILY ACCESSIBLE** means capable of being reached easily for cleaning, repair, replacement, or inspection without requiring a person to climb over or remove obstacles or use portable ladders, chairs or similar devices.

**READILY DISASSEMBLED** means capable of being taken apart by hand or by using only simple tools such as a screwdriver, pliers or open-end wrench.

**RECESSED STEPS STAIRS** ~~is means a riser/tread or series of risers/treads extending down into the pool from the deck with the bottom riser or tread terminating at the pool wall flush or recessed back from the pool wall (thus creating a "stair well").~~

~~**RECESSED TREADS** are a series of vertically spaced cavities in the pool wall creating tread areas for stepholes.~~

**RECIRCULATION SYSTEM** ~~is the interconnected system traversed by the recirculated water from the pool until it is returned to the pool, i.e., from the pool through the collector or surge tank, recirculation pump, filters, chemical treatment and heater (if provided), and returned to the pool.~~ means the system of hydraulic components designed to remove the water from the pool to allow filtration, disinfection and return to the pool.

**RECREATIONAL WATER PARK** means a facility with one or more water attractions.

**RIMFLOW OVERFLOW SYSTEM** means a perimeter overflow system in which the overflow rim is at the same elevation with the deck.

**RUN-OUT SLIDE** means an activity pool that is characterized by a flume where the rider stops in the flume in preparation for exiting.

**SHALLOW POOL** ~~is~~ means a pool that has a maximum water depth of ~~less than 6 feet (1829 mm)~~ or less.

**SLIP-RESISTANT** ~~is a rough finish that is not abrasive to the bare foot.~~ means a surface having a coefficient of friction greater than 0.6.

**SPA POOL** means a pool that is constructed to incorporate a water jet system, an aeration system, or a combination of the two systems used in conjunction with water heated between 90° and 104° degrees Fahrenheit.

**SPECIAL PURPOSE POOL** means a pool constructed exclusively for a specific activity, such as instruction, diving, competition, or medical treatment.

**SPLASH ZONE** means the maximum distance the water from an interactive water fountain/feature can project horizontally.

**SPRINGLINE** means the point from which the pool wall breaks from vertical and begins its arc in the radius of curvature.

**STAIRS** ~~are~~ means a series of two or more steps, each consisting of a riser and tread.

**STEP** ~~is~~ means a riser and tread.

**STEP HOLES** means a series of horizontal cavities vertically spaced in the pool wall creating tread areas for pool ingress and egress.

**STEP TREAD OR TREAD** means the horizontal part of the step.

~~**STEPS, RECESSED STEPS, LADDERS, AND RECESSED TREADS**~~ are those means of entry and exit to and from the pool which may be used in conjunction with each other.

**SURGE CHAMBER** means a reservoir, or surge trench open to the atmosphere, to receive water via gravity flow from the main drain line and surface overflow system and from which the pump draws the water to the filtration and disinfection equipment.

~~**TREATMENT OF WATER**~~ is the process of conditioning and disinfection of pool water by means of a combination of filtration and the addition of chemicals to the water.

~~**TURNOVER TIME**~~ is the period of time, in hours, required to circulate a volume of water equal to the pool capacity means the minimum time necessary to circulate the equivalent of the entire volume of the pool water through the recirculation system.

**UNIFORMITY COEFFICIENT** is means the ratio of theoretical size of sieve (in mm) that will pass 60 percent of the sand to the theoretical size of sieve (in mm) that will pass 10 percent.

**WADING POOL** means a pool constructed for wading by children and having a maximum water depth of 18 inches at the deepest point and a maximum water depth of 12 inches at the sidewalls.

**WATER ATTRACTION** means an activity pool, inner tube ride, children's pool, run-out slide, water course ride, waterslide, wave pool or other water activity pool found at a Recreational Water Park and its components and appurtenances.

**WATERCOURSE RIDE/LAZY RIVER** means an activity pool to convey riders on inner tube-like or raft-like devices around a level course using artificially created water current.

~~**WATERLINE**~~ shall be defined in one of the following ways:

1. Skimmer system. The waterline shall be the midpoint of the operating range of the skimmers.

~~2. Overflow system. The waterline shall be the top edge of the overflow rim.~~

**WATER SLIDE** means a flume of varying slope and direction that regulates rider speed and discharges into a landing pool.

**WAVE POOL** means an activity pool that produces waves, usually starting from the deep end and proceeding towards and dissipating at the shallow end.

## **~~Section. 3103B Special Pool Classifications.~~**

**~~3103B.1 Spa Pool.~~** A spa pool is a pool, not used under medical supervision, that incorporates a water jet system, an aeration system, or a combination of the two systems, and which may also utilize artificially heated water. The surface water area of a spa pool shall not exceed 250 square feet (23 m<sup>2</sup>), and the water depth shall not exceed 4 feet (1219 mm).

**~~Note:~~** See also ~~Section 3119B.1.2.~~

**~~3103B.2 Special Purpose pool.~~** A special purpose pool is a pool intended to be used exclusively for a single purpose, such as wading, instruction, diving, competition, or for medical treatment where a licensed professional in the healing arts is in attendance.

**~~3103B.3 Temporary Training Pool.~~** A temporary training pool is a pool intended to be used for instruction in swimming, having a maximum water depth of 36 inches (914 mm), and so constructed as to be readily disassembled for storage or for transporting to and reassembly to its original integrity at a different location. A temporary training pool shall be limited to a maximum use of three months at any one geographical location during any 12-month period.

**~~3103B.4 Wading pool.~~** A wading pool is a pool intended to be used for wading by small children and having a maximum depth of 18 inches (457 mm) at the deepest point and a maximum depth of 12 inches (305 mm) at side walls.

## **PLAN REVIEW, PERMITS, CONSTRUCTION, AND FIELD INSPECTIONS**

### **Section 3103B - Plan Review.**

**3103B.1** A person proposing to construct, renovate or alter a pool, ancillary facility or equipment and their appurtenances shall submit plans and specifications detailing compliance with these regulations to the enforcing agency for review and written approval prior to commencing work. Proposed handicap facilities shall be shown on all plans. A local building

department shall not issue a permit for a public pool or ancillary facility until after the plans have been approved by the enforcing agency.

**3103B.2** Plans submitted for approval pursuant to this section shall be drawn to a scale of ¼ inch equals 1 foot, except that plans for spa pools shall be drawn to a scale of 1 inch equals 1 foot.

**3103B.3** Within 30 working days of the receipt of plans and specifications, the enforcing agency shall notify the person submitting the plans and specifications of their approval or disapproval.

**3103B.4** The enforcing agency shall retain one copy of the approved plans and specifications and any subsequent changes or modifications. The approved plan shall be valid for a period of one year from the date of approval.

**~~Section 3104B. Accessibility to the Physically Handicapped Person.~~**

~~Swimming pools and their appurtenances shall be in compliance with the requirements of the state architect for access to public accommodations by physically handicapped persons.~~

~~Note: See Chapter 11 A.~~

**Section 3104B - Construction.**

Pools, all ancillary facilities, equipment and appurtenances shall be constructed, renovated or altered in compliance with plans approved pursuant to Section 3103B.

**Section 3105B - Inspection During Construction.** The pool owner, or their designated agent, shall obtain inspections from the enforcing agency prior to construction activities such as applying gunite, plaster or placing the pool into operation.

**Section 3106B - ~~Pool Construction~~ Interactive Water Fountain/Feature Special Requirements.**

The provisions of this Section shall apply to the interactive water fountain/feature pool.

All provisions of this Chapter shall apply to interactive water fountain/feature pools unless specifically addressed in this section.

**3106B.1** All parts of the interactive water fountain/feature shall be designed, constructed, maintained and operated so there are no slip, trip or fall hazards or other conditions that may pose a safety hazard.

**3106B.2** The splash zone shall be sloped so that only water from the interactive water fountain/feature flows back to the underground reservoir. Areas adjacent to the splash zone shall be sloped away from the interactive water fountain/feature to deck drains or other approved surface water disposal systems.

**3106B.3** Then shall be no ponding of water within the splash zone.

**3106B.4** Nozzles that spray from the ground level shall be flush with the ground, with openings no greater than one-half inch.

**3106B.5** All foggers and misters that produce finely atomized mists shall be supplied directly from a potable water source and not from the underground reservoir.

**3106B.6** The recirculation system shall not be directly interconnected with the interactive water fountain/feature pump.

**3106B.7** The interactive water fountain/feature pump and recirculation pump shall be electrically interconnected so when the recirculation pump is off the interactive water fountain/feature pump is also off.

**3106B.8** The total volume of the underground reservoir shall be at least 4,000 gallons and a minimum of 3 times the gpm flow rate of all the interactive water

fountain/feature pumps and the recirculation pump combined.

**3106B.9** The turnover rate shall be one half hour or less.

**3106B.10** The suction intake of the interactive water fountain/feature pump in the underground reservoir shall be located adjacent to the recirculation return line.

**3106B.11** The suction intake from the recirculation pump shall be located in the lowest portion of the underground reservoir.

**3106B.12** The underground reservoir shall be designed to have access for cleaning and inspection.

**3106B.13** The reservoir shall be equipped with an automatic make up water fill device.

**3106B.14** Section 3116B and 3119B.1 shall not apply to interactive water fountain/feature pools.

## **~~Section. 3107B Additional Requirements for a Temporary Training Pool~~**

~~**3107B.1** A temporary training pool shall comply with this section in addition to the provisions contained in Section 3106B.~~

~~**3107B.1.1 Installation Site.** A temporary training pool shall be installed on a paved level surface extending at least 10 feet (3048 mm) beyond all pool walls.~~

~~**3107B.1.2 Cover.** The temporary training pool shall be provided with a solid cover. The cover shall be installed during periods when the pool is not open for use and shall be secured to the pool in a manner to prevent unauthorized removal.~~

~~**3107B.1.3 Design.** The pool cover shall be designed to support a uniform live load of 40 pounds per square foot (1.9kN/m<sup>2</sup>). The structural design of the pool and cover shall be approved by a California registered professional engineer.~~

**Section ~~3105B~~ 3107B - Alternate Equipment, Materials, and Methods of Construction.**

**~~3105B.1~~ 3107B.1** The enforcing agency may approve ~~an alternative~~ alternate equipment, materials, or methods of construction, provided ~~it finds that the proposed design alternatives is satisfactory and complies~~ comply with the provisions of this chapter; ~~that t~~ The equipment, materials, method or work offered is, for the purpose intended, and methods of construction shall be at least equivalent to that prescribed in this chapter in suitability, strength, effectiveness, fire resistance, durability, safety, and sanitation, or that the methods of installation proposed conform to other accepted nationally recognized standards, and providing the alternate has been approved and its use authorized by the enforcing agency. The proposed methods of installation shall conform to nationally recognized standards for pool construction and equipment. All proposed pumps, filters, disinfectant and chemical feeders, and all other related parts of the recirculation system where applicable shall meet or be equivalent to ANSI/NSF International Standard 50.

**~~3105B.2~~ 3107B.2** The enforcing agency shall require that ~~sufficient~~ evidence or proof be submitted to substantiate any claims that ~~may be made regarding its use~~ the alternative equipment, materials, or methods of construction meet the requirements of this Chapter.

**~~3105B.3~~ 3107B.3** Whenever there is insufficient evidence of compliance with the provisions of this chapter, the enforcing agency ~~may~~ shall require tests as proof of compliance to be made at no expense to the enforcing agency. Tests shall be made in accordance with approved nationally recognized standards, but in the absence of such standards, the enforcing agency ~~may~~ shall specify the ~~test procedure~~ testing methods and procedures.

**~~Section 3106B~~ 3108B - Pool Construction.**

**~~3106B.1~~ 3108B.1 Pool Shell Structural Integrity.** The pool shall be ~~designed and durably~~ built of reinforced concrete, or material equivalent in strength, shall be watertight, and be able to withstand anticipated stresses under both full and empty conditions, taking into consideration climatic effect, geological conditions, integration of the pool with other structures and similar factors.

**~~3106B.2~~ 3108B.2 Finish.** The finished pool shell shall be lined with a ~~smooth~~ slip-resistant, solid and waterproof interior finish that will withstand repeated brushing, scrubbing and cleaning procedures. The interior pool finish shall completely line the pool to the tile lines, coping or cantilevered deck. Flexible liners shall not be permitted. There shall be a straight line of tile, at least 6 inches high, installed at the water line, extending around the entire perimeter of the pool.

**~~3106B.3~~ 3108B.3 Finish Color.** The finish color shall be white except for the following, which shall be of contrasting color:

1. Lane and other required pool markings described in Section ~~3109B~~ 3110B;
- ~~2. Handholds;~~
- ~~3. Copings;~~
4. 2. The top surface edges of benches in spas ~~and~~;
- ~~5. 3.~~ The edge of spa pool steps;
4. Tiles installed at the water line.

**EXCEPTION:** A spa pool ~~shall be permitted to be~~ may be finished in a ~~light (pastel)~~ color other than white ~~when approved by the enforcing agency~~ provided the color has a Light Reflective Value of 55% or greater.

**~~3106B.4~~ 3108B.4 Projections and Recessed Areas.** ~~The surfaces of the pool shall not have any projections or recessed areas except for handholds, recessed treads, steps, ladders, stairs, pool inlets and outlets, skimmers, and perimeter overflow systems~~ projections and recesses in the pool shell design as specified in Section 3109B.

**EXCEPTION NO 1:** ~~Benches shall be permitted in a spa pool providing that the water depth over the bench does not exceed 24 inches (610 mm).~~ This section shall not apply to handholds, recessed treads, steps, ladders, stairs, handrails, skimmers, perimeter overflow systems.

**EXCEPTION NO 2:** In pools other than spas, recessed underwater benches shall be installed only in areas with a water depth less than 4 feet. Bench seats shall be 12 to 24 inches wide and no more than 6 feet long. A continuous line of slip-resistant dark contrasting colored tile or permanent marking, having a width of between 1 and 2 inches, set back 1 inch from the seat edge shall be installed on the horizontal and vertical surfaces of the pool finish. The maximum water depth over the bench shall not be more than 24 inches.

**Section ~~3108B~~ 3109B - Pool Geometry.**

**~~3108B.1~~ 3109B.1 Dimensions and Slopes General.** ~~The dimensions and slopes of a~~ A pool shall conform to the appropriate criteria in Figure 31B-1 through 31B.3 6.

~~EXCEPTION: A special purpose pool shall be permitted a depth greater than 3 1/2 feet (1067 mm) at the shallowest end.~~ A special purpose pool may be exempted from specific construction standards if they are not applicable to the proposed use and if the health and safety of the pool users will not be jeopardized.

**~~3108B.2~~ 3109B.2 Drainable Minimum and Maximum Depths.** ~~The pool shall be completely drainable through a main drain which shall be located at the deepest point in the pool. There shall be no minimum water depth at the shallow end. The maximum water depth at the shallow end of a pool and at the entire base of any stair shall be 3 1/2 feet.~~

**~~3108B.3~~ 3109B.3 Dimensional Tolerances Wall Clearances.** ~~A construction tolerance shall be permitted on all dimensions in Figures 31B-1, 31B-2, and 31B-3, not to exceed 2 inches (51 mm) except that the tolerance of the water level of a pool with a nonadjustable overflow system shall not exceed or 1/8 inch (3.2 mm).~~ All pool walls shall have a clearance perpendicular from the wall for a distance of at least 15 feet except this distance shall be at least 12 feet in pools with a maximum water depth of 6 feet or less.

**EXCEPTION:** Recessed stairs are exempt from this requirement.

**~~3108B.4~~ 3109B.4 Bottom Slope Break from Shallow to Deep Water.** ~~When a pool has a change in bottom slope from shallow to deep water, flush-mounted devices for fastening a safety rope and buoys across the pool shall be installed where the water depth is 4 1/2 feet (1372 mm).~~ Any portion of a pool having a water depth of 4 1/2 feet or less shall have a uniform slope that

shall not exceed 1 foot vertical in 10 feet of horizontal. In pools with water depths greater than 4 1/2 feet, the slope shall meet the requirements in Figures 31B-1 through 31B-4. There shall be a uniform water depth along the entire base of the stairs.

**3109B.5 Dimension Tolerance.** A construction tolerance shall be permitted on design dimensions in Figures 31B-1 through 31B-4, not to exceed plus or minus 2 inches.

**EXCEPTION NO. 1:** The tolerance of the water level of a pool with a nonadjustable perimeter overflow system shall not exceed plus or minus 1/8 inch.

**EXCEPTION NO. 2:** Step treads and risers shall have a construction tolerance of plus or minus 1/2 inch.

**Section ~~3109B~~ 3110B - Permanent Markings.**

**3110B.1 General.** No markings or designs shall be permitted on the pool shell except for slip-resistant lane markings, depth marking lines and/or safety markings.

**~~3109B.1~~ 3110B.2 Lane Markings.** Slip-resistant lane lines or other markings at the bottom of the pool shall not exceed 12 inches (~~305 mm~~) in width.

**~~3109B.2~~ 3110B.3 Depth Marking Line .** A straight line of slip-resistant ~~tile~~ material, shall be installed 4 inches (~~102 mm~~) wide of contrasting color ~~across the bottom of the pool where from~~ the pool shell, and having a width that is not less than 4 inches nor greater than 6 inches, across the bottom of the pool where the water depth is 4 1/2 feet. (~~1372 mm~~)

**EXCEPTION:** Pools having a ~~maximum~~ water depth of 5 feet (~~1524 mm~~) or less shall not be required to have a depth marking line.

**~~3109B.3 Decorative Designs.~~** ~~Designs on the bottom or walls of the pool which are shaped in a form that might reasonably be mistaken for, or give the illusion of being, a human form, shall be prohibited.~~

**~~3109B.4~~ 3110B.4 Water Depth Markers.**

**~~3109.4.1 General.~~** The water depth shall be clearly marked at the following locations:

- ~~1. Maximum depth;~~
- ~~2. Minimum depth;~~
- ~~3. Each end;~~
- ~~4. At the break in the bottom slope between the shallow and deep portions of the pool (see also Section 3108B.4); and~~
- ~~5. On the perimeter of the pool at distances not to exceed 25 feet (7620 mm).~~

~~**EXCEPTION:** A spa or wading pool shall have a minimum of two depth markers indicating the maximum depth.~~

~~**3109B.4.2 Location.** Depth markers shall be located on the vertical pool walls at each end and side of the pool at or above the water level. If a pool exceeds 20 feet (6096 mm) in width, additional markers shall be located on the edge of the deck next to the pool.~~

~~**EXCEPTION:** If depth markers cannot be located on the vertical pool walls above the waterline because of the pool design, the depth markers shall be located so as to be clearly visible to bathers in the pool.~~

~~**3109B.4.3 Tolerance.** Depth markers shall be positioned to indicate the water depth accurate to the nearest 6 inches (152 mm).~~

~~**3109B.4.4 Size of Markers.** Depth markers shall:~~

- ~~1. Have numerals a minimum of 3 inches (76 mm) in height and of a color contrasting with the background;~~
- ~~2. Be made of a durable material that is resistant to weathering; and~~
- ~~3. Be slip resistant when they are located on the pool deck.~~

**3110B.4.1** The water depth shall be marked around the perimeter of the pool. The depth markers shall be made of materials that are resistant to the effects of the pool water, such as porcelain tile. They shall be contrasting in color to the background surface and shall be a minimum of 4 inches high. Each depth marker shall indicate depth in feet and each numeral shall be followed by "FT" or FEET".

**3110B.4.2 Location.** Depth markers shall be positioned to be accurate within 3 inches of the actual water depth. They shall be located at the water line tile, at the sides and ends of the pool,

showing minimum and maximum water depths, and at the break in slope or at the midpoint of the pool if there is no break in slope.

**3110B.4.3** Slip-resistant depth markers shall also be installed on the deck, corresponding to the wall depth markers.

**3110B.4.4** The distance between depth markers shall not exceed 25 feet.

**EXCEPTION:** A spa pool shall have a minimum of 2 depth markers on the pool wall and on the pool deck indicating the maximum water depth

**3110B.5 Step and Bench Markings.** There shall be installed a continuous line of slip-resistant dark contrasting colored tile or permanent marking, having a width of between 1 and 2 inches, set back 1 inch from the edge of the pool and spa steps and spa bench.

**Section ~~3110B~~ 3111B Steps, Recessed Steps, Ladders, and Recessed Stairs (Treads) - Stairs,  
Ladders and Step Holes with Handrails.**

**~~3110B.1~~ 3111B.1 Construction** A means of entry and exit to and from the pool shall consist of steps, recessed steps, ladders or stairs, or a combination of them. One means of entry and exit shall be provided in the shallowest portion of a pool if the vertical distance from the bottom of the pool to the deck is over 2 feet (610 mm). A second means of entry and exit shall be provided in the deep portion of a pool having a depth greater than 4 1/2 feet (1372 mm). Where the width of the pool exceeds 30 feet (9144 mm), such means of entry and exit shall be provided at each side, not more than 100 feet (30480 mm) apart.

**3111B.1 General.** Entry and exit from a pool shall consist of one or a combination of stairs, ladders or step holes with handrails. Ladders and handrails shall be constructed of durable and corrosion-resistant materials. The outside diameter of the handrails shall be between 1 1/2 and 2 1/2 inches.

**Note:** For illustrated diagrams pertaining to this section, see Figure 31B-5.

**~~3110B.2~~ 3111B.2 Ladders.** Ladders with a handhold shall be corrosion resistant and shall be equipped with slip-resistant tread surfaces. Ladders shall be rigidly installed and shall provide a clearance of not less than 3 inches (76 mm) or more than 5 inches (127 mm) between any part of the ladder and the pool wall.

**~~3110B.3~~ 3111B.3 Stairs.** Each step of a stair shall have the same dimensions with a tread not less than 12 inches (305 mm) wide, except that if the top step is curved convexly, the top step tread shall not be less than 18 inches (457 mm) wide as measured at the point of maximum curvature. Risers shall be uniform and shall not exceed 12 inches (305 mm) in height. A safety

~~railing shall be provided, extending from the deck to not less than a point above the top of the lowest step and with the upper railing surface not less than 28 inches (711 mm) above the deck.~~

**3111B.3.1** Stairs shall be provided in the shallowest portion of a pool exceeding 1 foot in water depth. In pools with more than one shallow end, stairs shall be provided at each shallow end. An additional means of entry and exit shall be provided in the deepest portion of a pool if the water depth of the pool is greater than 4 1/2 feet, or if the length of the pool is greater than 30 feet. Where the width of the pool exceeds 30 feet, such a means of entry and exit shall be provided on each side, not more than 100 feet apart.

**3111B.3.2** The tread of a rectangular shaped top step shall be between 14 and 18 inches. A convex or concave shaped top step shall have a radius of between 21 and 24 inches. A triangularly shaped top step, from apex to base, shall be between 21 and 24 inches.

**3111B.3.3** The remaining steps shall be uniform in size and shall have a tread that is between 12 and 16 inches.

**3111B.3.4** All step treads shall be slip-resistant and level.

**3111B.3.5** The risers of all steps shall be uniform in height and shall be between 6 and 12 inches high.

**3111B.3.6** Steps shall conform to the criteria in Figure.31B.5.

### **3111B.3.7 Handrails at Stairs.**

**3111B.3.7.1** A handrail shall be provided over the stairs, extending from the deck to a point above the bottom step tread. The clearance between any handrails and the step riser or the pool wall shall be a minimum of 3 inches.

**3111B.3.7.2** The upper railing surface shall be between 27 and 36 inches above the deck and each step tread.

**3111B.3.7.3** For stairs greater than 20 feet across, at least two handrails shall be provided, spaced an equal distance across the entire width of the stairs.

**3111B.3.7.4** If a spa bench is not flush with one of the stair treads, a handrail shall be provided at each bench/step juncture.

**3110B.4 3111B.4** Steps and Step Holes. Steps and step holes shall have a ~~minimum~~ tread of 5 to 10 inches (~~427 mm~~), a minimum width of 14 inches (~~356 mm~~), and shall be designed to be readily cleaned.

**3110B.5 3111B.5** Hand Railings. Hand railings shall be provided at the top of both sides of the step holes and shall extend not greater than 3 inches ~~over~~ beyond the coping or edge of the deck for each ladder and step hole.

**3110B.6** ~~Steps for a Spa Pool.~~ Each step of a spa pool shall have a tread width not less than 12 inches (305 mm). Risers shall not exceed 9 inches (229 mm) in height when one handrail is provided, or 12 inches (305 mm) in height when two handrails are provided. A handrail shall be installed over the steps, with the leading railing edge extending up to a point not less than 12 inches (305 mm) from the plane of the bottom riser. The steps shall be located where the deck is at least 4 feet (1219 mm) wide.

## **Section ~~3111B~~ 3112B - Handholds.**

**~~3111B.1~~ 3112B.1 General.** Every pool shall be provided with a handholds (~~perimeter overflow system, bull-nosed coping or cantilevered decking~~) extending around the entire pool perimeter installed not greater than 9 inches (229 mm) above the waterline. The handhold shall be slip resistant and durable.

**EXCEPTION:** ~~Handholds are not required for wading pools.~~

**~~3111B.2~~ 3112B.2** ~~For special use pools used for instruction or competitive swimming, a handhold at water level similar to the rim of a perimeter overflow system is required. The~~ handhold shall be contiguous with the pool shell and the top of the handhold shall be 9 inches or less above the water level.

**~~3111B.3~~ 3112B.3** ~~perimeter overflow systems are not provided, a bull-nosed coping or cantilevered decking of reinforced concrete, or material equivalent in strength and durability, with rounded, slip-resistant edges shall be provided. The overhang for either bull-nosed coping or cantilevered decking shall not exceed 2 inches (51 mm) or be less than 1 inch (25 mm) and shall not exceed 2 1/2 inches (64 mm) in thickness. The overhang for the handhold shall be between 1 and 2 inches and shall not exceed 2 1/2 inches in thickness. All corners shall be coved and edging shall be rounded.~~

**EXCEPTION:** ~~The enforcing agency may accept handholds other than those specified for spa pools.~~

1. For prefabricated spa pools, handholds with the following characteristics shall be permitted:

- a. The handhold shall be at least 0.5 inches but not greater than 2 inches high as measured from the deck surface.
- b. The handhold shall be at least 2 inches but not greater than 6 inches wide.

- c. The horizontal surface of the handhold shall not be sloped and shall be slip-resistant.
  - 2. Handholds for pools with rimflow skimming systems and spa pools that meet the requirements of Figure 31B-6 shall be permitted.
  - 3. On perimeter overflow system pools, a handhold is not required at the top step.
- 3112B.4 Rimflow overflow pools shall use the overflow rim as the handhold.**

## **Section 3112B-3113B - Diving Boards and Platforms.**

**3112B.1 3113B.1 General Construction.** ~~Diving boards and their supports, platforms and steps shall be substantially constructed and shall be of sufficient strength to carry the maximum anticipated load.~~ Diving boards and platforms shall be properly anchored and finished with a durable slip-resistant material maintained free of cracks, splinters, or trip hazards. ~~Steps~~ Diving boards and platforms shall be of corrosion-resistant material, easily cleanable and of slip-resistant design and construction.

**3112B.2 3113B.2 Railings and Steps.** Handrails shall be provided at all steps and ladders leading to diving boards more than 1 meter above the water; ~~except those steps or ladders set 15 degrees or less from the vertical.~~ Platforms and diving boards that are over 1 meter above the water shall have ~~G~~uardrails extending on both sides that extend to a point on the platform directly above the water's edge ~~shall be provided on both sides of all platforms and diving boards which are over 1 meter high.~~ Guardrails shall be 36 inches (914 mm) above the platform or diving board. Diving boards greater than 18 inches in height above the deck shall be provided with a ladder or stairs.

**3113B.3 Dimensions.** Dimensions for diving facilities shall conform to those shown in Figures 31B-1 and 31B-2. Platforms and diving boards greater than 3 meters above the water shall conform to the 2003 Edition United States Diving, Inc. standards.

## **Section ~~3113B~~ 3114B - Pool Decks.**

**~~3113B.1~~ 3114B.1 General.** A minimum continuous and unobstructed 4 foot wide (~~1219 mm~~), slip-resistant, easily cleanable, non-abrasive deck area of concrete or like material shall be provided flush with the ~~top of the pool shell wall~~ coping, extending completely around the pool, ~~and the deck area shall further extend 4 feet (1219 mm) on both sides and rear of any diving board or slide and their appurtenances. The deck width shall be measured from the poolside edge of the coping lip. Where there are diving boards, fixed handicap lifts or similar handicap assistant devices on the deck, the deck area shall further extend 4 feet on all sides away from the pool. The deck width shall be measured from the leading edge of the handhold.~~

**EXCEPTION:** A deck of at least 8 feet in width shall extend completely around pools with a water surface area of 3,000 square feet or greater.

**EXCEPTIONS:** ~~1. A deck at least 4 feet (1219 mm) in width shall extend around 50 percent or more of the perimeter of a spa pool. For spa pools that have their walls extending above the ground or floor level, the deck area requirement shall apply at the ground or floor level unless otherwise specified by the enforcing agency.~~

~~2: The deck width separating a spa pool from an adjacent pool shall not be less than 6 feet (1829 mm) wide.~~

~~3: The deck may be omitted from around a temporary training pool.~~

**~~3113B.2~~ Deck Drainage.** The pool deck surfaces shall be sloped a minimum of  $\frac{1}{4}$  inch (6.4 mm) per foot to deck drains or other approved surface water disposal areas. The pool deck surface shall not drain into the pool, its perimeter overflow channel, into an adjoining spa or other pool, or be connected to the recirculation system.

~~Note: A deck drain system of one 4 inch (102 mm) drain inlet per 400 square feet (37m<sup>2</sup>) of tributary deck area, with drains spaced 25 feet (7620 mm) apart, usually provides adequate surface water disposal.~~

**3114B.2 Deck between pools and/ or spas.** Where multiple pools, and/or spas are built adjacent to each other, the deck width separating them shall be a minimum of 6 feet.

**3113B.3 Pool Coping.** ~~Pool coping shall be slip resistant.~~

**3114B.3 Deck slope.** The pool deck surface shall be sloped away from the pool a minimum of 1/4 inch per foot to a deck drainage system. Water shall not pond on the deck.

**3113B.4 Coverings.** ~~Artificial covering shall be permitted on the deck area when approved by the enforcing agency.~~

~~**Note:** Deck slopes to provide proper drainage may vary with the texture of the surface. It is recommended that the minimum slope be increased if artificial coverings or exposed aggregate concrete surface is contemplated.~~

**3114B.4 Deck Covering.** Deck coverings or other materials that are not equivalent to concrete in strength, durability, slip-resistance or cleanability shall not be installed or used within 4 feet of the pool.

**3113B.5 Handrails.** ~~Handrails shall be provided around the perimeter of any raised deck of a temporary training pool.~~

**3113B.6 Unpaved Areas.** ~~Landscape plants, flower beds, or similar unpaved areas shall not be located within 4 feet (1219 mm) of a spa pool.~~

## **Section ~~3114B~~ 3115B - Pool Lighting**

**~~3114B.1 General.~~** ~~Where pool lighting is provided, it shall be such that lifeguards or other persons may observe, without interference from direct and reflected glare from the lighting sources, every part of the underwater area and swimming pool surface, all diving boards or other pool appurtenances.~~

**~~Note:~~** ~~See (Part 3) Article 3-680 for electrical installation requirements.~~

**~~3114B.2 Nighttime Use.~~** ~~Pools used at night shall be equipped with underwater lighting fixtures that will provide complete illumination to all underwater areas of the pool with no blind spots. Illumination shall enable a lifeguard or other persons to determine whether:~~

- ~~1. A bather is lying on the bottom of the pool, and~~
- ~~2. The pool water conforms to the definition of "clear pool water".~~

**~~EXCEPTION:~~** ~~Pools provided with a system of overhead lighting fixtures, where it can be demonstrated to the enforcing agency that the system is equivalent to the underwater lighting fixture system.~~

**~~3114B.3 Deck Area Lighting.~~** ~~Where the pool is to be used at night, pool deck areas shall be provided with lighting so that persons walking on the deck can identify hazards. Lighting fixtures shall be aimed towards the deck area and away from the pool surface insofar as practical.~~

**3115B.1 General.** Pools shall have underwater and deck surface lighting as specified in this Section. If underwater or deck surface lighting is not operational, the operator of the pool shall secure the pool area and not permit any use of the pool after dark and shall post the same sign as required in section 3120B.9.

**3115B.2 Underwater Lighting.**

**3115B.2.1** Lighting shall be white in color.

**3115B.2.2** Lights shall be located so that all portions of the pool are uniformly illuminated.

**3115B.2.3** Underwater lighting shall be sized using the following formula:

$$\text{Required Wattage} = (20) \times (\text{sq. ft. of pool surface area}) \\ \text{(lumens per watt of light source)}$$

**EXCEPTION:** Wading pools are not required to have underwater lighting.

**3115B.3 Pool Deck Lighting.** When the pool area is accessible, the deck shall be illuminated with a minimum of 10-foot candles for outdoor pools and 30-foot candles for indoor pools as measured at the deck surface.

**Section ~~3115B~~ 3116B - Bathhouse, Dressing, Shower, and Toilet Facilities.**

**~~3115B.1~~ 3116B.1** Shower and dressing facilities shall be provided for ~~users of a pool~~ users.

**EXCEPTIONS:** 1. Public toilet, Shower and dressing facilities ~~may not be~~ are not required when ~~bathers~~ pool users have access to ~~such~~ these facilities in ~~adjacent~~ living quarters and/or buildings located not more than 100 feet in walking distance from the edge of the pool.

2. ~~Public toilet facilities may be omitted when bathers have access to toilet facilities either in living quarters located not more than 300 feet (91440 mm) in travel distance from the pool, or in an adjacent building such as a recreational facility, clubhouse, or cabana.~~

**~~3115B.2~~ 3116B.2 Number of Sanitary Facilities.** For the purpose of this subsection, one ~~bather~~ pool user shall be considered for every 15 square feet (~~4.39 m sq~~) of pool water surface area.

**~~3115B.2.1~~ 3116B.2.1 Showers.** One shower shall be provided for every 50 ~~bathers~~ pool users or fraction thereof.

**~~3115B.2.2~~ 3116B.2.2 Toilets.** Separate toilet facilities shall be provided for each sex. One toilet shall be provided for every ~~60~~ 50 women or fraction thereof and one toilet plus one urinal for every 75 men or fraction thereof.

**~~3115B.2.3~~ 3116B.2.3 Lavatories.** One lavatory shall be provided for every 80 ~~bathers~~ pool users or fraction thereof.

**3116B.2.4 Soap Dispensers.** Showers and lavatories shall be provided with permanently installed soap dispensers.

**3116B.2.5 Towels and Toilet Tissue.** Single use towels or hot air blowers and toilet tissue shall be provided in permanently installed dispensing devices.

**~~3115B.3~~ 3116B.3 Construction.**

**~~3115B3.1~~ 3116B.3.1 Floors.** Floors shall have a ~~hard~~ durable, nonabsorbent, slip-resistant surface, such as ~~portland cement~~ concrete, ceramic tile or other ~~approved~~ similar material, which extends upward onto the wall at least ~~5 4 inches (127 mm)~~ with a minimum 3/8 inch radius coved base. ~~Floors which may be walked on by a wet bather shall be slip-resistant.~~ Floors shall be sloped not less than 1/4 inch (~~6.4 mm~~) per foot to floor drains ~~or other approved surface water disposal areas.~~ Indoor/outdoor ~~C~~carpeting and or other similar ~~artificial floor covering types of material~~ shall not be permitted on ~~shower and toilet room floors~~ toilet, shower, locker room or dressing facility floors.

**Note:** ~~Rough rotary, raised rubber or wood float finish of concrete usually provides a slip-resistant finish.~~

**~~3115B.3.2~~ 3116B.3.2 Interior Wall Surfaces.** ~~The materials used in the walls, except for structural elements, shall be of a type which is not adversely affected by moisture.~~ Walls, doors and partitions of showers, toilets, dressing facilities, locker rooms, lockers and similar surfaces shall be light colored, smooth, nonabsorbent and easily cleanable having a Light Reflective Value of 55% or greater.

**~~3115B.3.3~~ 3116B.3.3 Privacy.** All doors and windows of any bathhouse, dressing room, shower or toilet facility shall be arranged to prevent viewing of the interior from ~~any portion of the building used by the opposite sex and from view from the outdoors.~~ View screens shall be permitted for this purpose ~~the exterior.~~

**~~3115B.4~~ 3116B.4 Water Supply.**

**~~3115B.4.1~~** Showers and lavatories shall be provided with hot and cold running water faucets under pressure.

**~~3115B.4.2~~** ~~Tempered water shall be permitted in lieu of individual hot and cold water faucets.~~

**3115B.4.3** A means temperature control device to limiting the plumbing fixtures dispensing hot water to 110 degrees F Fahrenheit (61—C) maximum shall be provided ~~to prevent scalding on the~~ water supply system. Hot water shall not exceed 110 degrees Fahrenheit and ~~This temperature~~ limit ~~control~~ shall not be adjustable by the ~~bather~~ pool user.

**Section ~~3116B~~ 3117B - Drinking Fountains.**

One guarded jet drinking fountain shall be provided within the pool enclosure for the first 250 ~~bathers~~ pool users and an additional guarded jet drinking fountain shall be provided for each additional 200 ~~bathers~~ pool users or fraction thereof. The number of ~~bathers~~ pool users shall be determined according to Section ~~3115B.2~~ 3116B.2.

**EXCEPTION:** Drinking fountains shall not be required when drinking water is available ~~at~~ in adjacent living quarters, or ~~in an adjacent buildings such as a bathhouse, cabana, clubhouse or recreational facility~~ located not more than 100 feet in walking distance from the pool.

**Section ~~3117B~~ 3118B - Hose Bibbs.**

Hose bibbs shall be provided ~~for each pool and located~~ so that all portions of the pool deck area may be reached with a ~~75-foot (22860 mm) length~~ of hose attached to the hose bibb. A hose bibb shall be provided in the equipment area. Hose bibbs shall be located so that they do not constitute a ~~safety hazard~~ and shall be protected by a backflow prevention device ~~against backflow~~ as required by the Department of Health Services under Health and Safety Code Sections 116800-80.

**Section ~~3118B~~ 3119B - Enclosure of Pool Area Enclosure.**

**~~3118B.1~~ 3119B.1 Enclosure.** The pool shall be enclosed by one or a combination of the following: a fence, wall, portion of a building, ~~wall~~ or other approved durable enclosure. Doors, openable windows, or gates of living quarters or associated private premises shall not be permitted as part of the pool enclosure. The enclosure, doors and gates shall meet all of the following specifications:

1. The enclosure shall have a minimum effective perpendicular height of 5 feet (~~1524 mm~~) as measured from the outside as depicted in Figures 31B.4 7 and ~~31B-5~~
2. Openings, holes or gaps in or under the enclosure, doors and/or gates shall not allow the passage of a 4-inch (~~102 mm~~) diameter sphere. ~~The bottom of the enclosure shall be within 2 inches (51 mm) of the finished grade.~~ The enclosure shall be constructed over concrete or other hard and permanent material.
3. The enclosure shall be designed and constructed so that it cannot be readily climbed by small children. Horizontal and diagonal member designs, which might serve as a ladder for small children, are prohibited. Horizontal members shall be spaced at least 48 inches (~~1219 mm~~) apart. Planters or other structures shall not be permitted to encroach upon the clear span area as depicted in Figure 31B.5 8. Chain link may be used provided that the openings are not greater than 1 ¾ inches (~~44 mm~~) measured horizontally.

**~~3118B.2~~ 3119B.2 Gates.** Gates and doors opening into the pool enclosure shall also meet the following specifications:

1. Gates and doors shall be equipped with self-closing and self-latching devices. The self-latching device shall ~~be designed to~~ keep the gate or door securely closed. Gates and doors shall open outward away from the pool except where otherwise prohibited by law. Hand activated

door or gate-opening hardware shall be located at least 3 1/2 feet (~~1067 mm~~) above the deck or walkway.

2. ~~Except as otherwise provided herein, g~~ Gates and doors shall be capable of being locked during times when the pool is closed. Exit doors that comply with Chapter 10 shall be considered as meeting these requirements.

**EXCEPTION:** Doors leading from areas of hotels and motels, as defined in the Business and Professions Code Section 25503.16(b), which are open to the general public, e.g., restaurants, lobbies, bars, meeting rooms, and retail shops need not be self-latching.

3. The pool enclosure shall have at least one means of egress without a key for emergency purposes. Unless all gates or doors are so equipped, those gates and/or doors which will allow egress without a key shall ~~be clearly and conspicuously labeled~~ have a sign in letters at least 4 inches (~~102 mm~~) high stating "EMERGENCY EXIT".

4. The enclosure shall be ~~designed and~~ constructed so that all persons will be required to pass through common pool enclosure gates or doors in order to gain access to the pool area. All gates and doors exiting the pool area shall open into a public area ~~or walkway accessible by all patrons of the pool~~.

**~~3118B.3~~ 3119B.3 Retroactivity.** Sections ~~3118B.1~~ 3119B.1 and ~~3118B.2~~ 3119B.2 shall apply only to a public ~~swimming~~ pool enclosures constructed on or after July 1, 1994.

**~~3118B.4~~ 3119B.4 Enclosure of pools constructed prior to July 1, 1994.** When the physical characteristics of a site preclude providing a 4 foot wide (~~1219 mm~~) deck around the perimeter of an existing pool, the enforcing agency may allow the installation of an enclosure which reduces the pool deck to less than 4 feet (~~1219 mm~~) in width.

**Section ~~3119B~~ 3120B - Required Signs.**

**3120B.1 General.** Unless otherwise required, all signs shall have clearly legible letters or numbers not less than 4 inches in height, affixed to a wall, pole, gate or similar permanent structure, in a location visible to all pool users. Signs shall be maintained in a legible manner.

**3119B.1.2 Occupant Load Sign.** A sign with clearly legible letters not less than 4 inches (102 mm) high shall be posted in a conspicuous place near the main entrance to a pool which shall indicate the number of occupants permitted for each pool.

**3119B.1.1 2.1. Spa Pool.** The occupant capacity of a spa pool shall be based on one bather for every 10 square feet (0.929 m<sup>2</sup>) of pool water surface area.

**3119B.1.2 2.2. Other Pools.** The occupant capacity for all other pools shall be based on one bather for every 20 square feet (1.858 m<sup>2</sup>) of pool water surface area.

**EXCEPTION:** Occupant capacity requirements do not apply to wading pools.

**3119B.2 3. Signs for Shallow Pool.** Signs with clearly legible letters not less than 4 inches (102 mm) high shall be posted in a conspicuous place and shall state: NO DIVING ALLOWED.

**3119B.3 Warning Signs for Pools Using Gas Chlorine.** Pools at which gas chlorine is used for disinfection shall have a conspicuously posted sign on the exterior side of the entry door to the chlorine room, or on the adjacent wall area. In addition to displaying the appropriate hazard identification symbol for gas chlorine, the sign shall state with clearly legible letters not less than 4 inches (102 mm) high the following: DANGER: GASEOUS OXIDIZER CHLORINE.

**3119B.4 Warning Signs for Pools Without Pool Lighting.** Where pool lighting fixtures which comply with section 3114B are not provided, a sign with clearly legible letters not less

~~than 4 inches (102 mm) high shall be posted in a prominent place near each entrance to the pool area. This sign shall state NO USE OF POOL ALLOWED AFTER DARK.~~

**3120B.4 No Lifeguard Sign.** Where no lifeguard service is provided, a warning sign shall be posted stating: "WARNING - NO LIFEGUARD ON DUTY". The sign shall also state "Children under the age of 14 shall not use pool without a parent or adult guardian in attendance," in letters at least 1 inch in height.

**3120B.5 Artificial Respiration/CPR Sign.** An illustrated diagram of artificial respiration/CPR procedures as recommended by the American Heart Association shall be posted in letters at least 5/16 inch in height. In addition, "911" or the telephone number of the nearest emergency services shall be posted.

**3120B.6 No Diving Sign.** A sign stating "NO DIVING ALLOWED" shall be posted at swimming pools with a maximum water depth of 6 feet or less.

~~**3119B.5**~~ **3120B.7 Warning Sign for a Spa Pool.** ~~A precaution sign with clearly legible letters shall be posted in a prominent place near the entrance to a spa pool which shall contain the following language:~~

**CAUTION**

A warning sign for spa pools shall be posted stating "CAUTION" and the following language in letters at least 2 inches in height:

1. Elderly persons, pregnant women, infants and those with health conditions requiring medical care should consult with a physician before entering a the spa.
2. Unsupervised use by children under the age of 14 is prohibited.
3. Hot-water immersion while under the influence of alcohol, narcotics, drugs or medicines may lead to serious consequences and is not recommended.

4. Do not use alone.

5. Long exposure may result in hyperthermia, nausea, dizziness or fainting.

**3119B.6 Approved Signs.** ~~Approved signs shall be maintained in a legible manner.~~

**3120B.8 Emergency Shut-off.** A sign shall be posted at the spa emergency shut-off switch in lettering at least 1 inch in height stating, "EMERGENCY SHUT-OFF SWITCH".

**3120B.9 No Use After Dark.** Where pools were constructed prior to the effective date of this Chapter and for which lighting was not required, a sign shall be posted stating, "NO USE OF POOL AFTER DARK".

**3120B.10 Keep Closed.** A sign shall be posted on the exterior side of gates and doors leading into the pool enclosure area stating, "KEEP CLOSED".

**3120B.11 Exit.** Where automatic gaseous chemical feeders are used, a sign shall be posted at the pool area entrance, which shows in a diagrammatic form, an emergency evacuation procedure. Designated emergency exits shall be marked, "EXIT".

**3120B.12 Gaseous Oxidizer.** Where automatic gaseous chemical feeders are used, a warning sign shall be posted on the exterior side of the door entering the chemical feeder room or area with the appropriate hazard identification symbol. The sign shall state, "DANGER: GASEOUS OXIDIZER - (specific chemical name)".

**3120B.13 Turn On Before Entering.** Where automatic gaseous chemical feeders are used, a sign shall be posted at the switch to the light and ventilation system for the gaseous chemical feeder room stating, "TURN ON BEFORE ENTERING" in letters at least 1 inch high.

**3120B.14 Ozone.** There shall be posted on the exterior of the entry door to the room containing the ozone generating equipment a sign stating "Danger: Gaseous Oxidizer - Ozone" with clearly legible letters not less than 4 inches high.

**3120B.15 Direction of Flow.** Where the recirculation equipment for more than one pool is located adjacent to another, the equipment shall be marked as to which pool the system serves.  
Where system manifolding occurs, direction of the flow shall be indicated in lettering at least ½ inch in height.

**~~Section 3121B -- Foundations for pool equipment.~~**

~~Pool equipment shall be mounted on a portland cement concrete or other easily cleanable nonabsorbent floor material. Floors shall be sloped a minimum of ¼ inch (6.4 mm) per foot to drains or other drainage disposal methods approved by the local enforcing agency.~~

**Section ~~3120B~~ 3121B - Indoor Pool Ventilation.**

~~A pool located indoors shall be ventilated according to acceptable engineering principles.~~

~~**Note:** See Section 1202.2 for ventilation requirements for dressing and toilet rooms.~~

The ventilation system shall provide a minimum rate of 20 cubic feet per minute per person, or 6 complete air exchanges per hour, whichever is greater.

### **~~Section 3122B Gas Chlorination Equipment Room.~~**

~~Compressed chlorine gas storage containers and associated chlorinating equipment, when installed indoors, shall be in a separate room of not less than one hour fire resistive construction and shall comply with all of the following sections:~~

**~~3122B.1 Location.~~** ~~The room shall not be located in a basement or below ground.~~

**~~3122B.2 Entry.~~** ~~The entry door to the room shall open to the exterior of the building or structure and shall not open directly towards the pool or pool deck.~~

**~~3122B.3 Ventilation.~~** ~~A mechanically operated exhaust ventilation system shall be provided sufficient to produce 60 air changes per hour. The exhaust ventilation shall be taken at a point at or near the floor level. The system shall be vented to the outside air, and at the point of discharge shall be at least 10 feet (3048 mm) from any openable windows, an adjacent building, and above the adjoining grade level. Fresh air intakes directly communicating with the outdoors shall be located within 6 inches (152 mm) of the ceiling.~~

**Section 3122B. - Pool Equipment Enclosure**

**3122B.1** All equipment installed for recirculation, filtration and disinfection of pool water shall be installed so as that access for adjustment is only by persons authorized by the pool owner/operator.

**3122B.2** Pool equipment shall be mounted on a continuous slab of concrete or other equivalent easily cleanable and nonabsorbent material. Floors shall be sloped a minimum of  $\frac{1}{4}$  inch per foot to a drain.

**3122B.3** Equipment, except for gas fired pool water heaters, located outside of a building shall be covered entirely by a solid overhead structure with a minimum height of 7 ft. 6 in. and shall be enclosed by fencing which extends to the overhead structure or to a height of 6 feet.

## RECIRCULATION AND TREATMENT SYSTEM COMPONENTS

### Section 3123B - General Requirements.

**3123B.1 System Description.** Each pool shall be provided with a separate recirculation and treatment system designed for the continuous recirculation, filtration and disinfection of the pool water. The system shall consist of pumps, filters, chemical feeders, skimmers or perimeter overflow systems, ~~and all~~ valves, pipes, connections, fittings and appurtenances.

~~**EXCEPTION:** Pools using fresh water equivalent in flow to the requirements of Sec. 3124B.~~

~~**NOTES NO. 1.** Fresh make-up pool water shall conform to the physical and bacteriological standards of California Code of Regulations Title 22, Chapter 20, Section 65531.~~

~~**2.** Two spa pools shall be permitted to share one recirculation and treatment system providing the flow and chlorination feed rate to each spa pool is individually metered and adjustable.~~

**3123B.2 Equipment.** All pumps, filters, disinfectant chemical feeders, skimmers and supplemental treatment systems shall be listed to the applicable ANSI/NSF International Standard 50.

~~**3123B.2**~~ **3123B.3 Installation.** All ~~recirculation and treatment system components~~ equipment related to pool operations shall be installed and maintained according to this code ~~code~~ Chapter and in accordance with the equipment manufacturer's written instructions.

~~**3123B.3**~~ **3123B.4 Accessibility.** All filters, valves, pumps, strainers and equipment ~~requiring adjustment~~ shall be readily accessible for repair and replacement.

~~**NOTE:** Readily accessible means capable of being reached quickly for operation, renewal or inspections, without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, etc.~~

**3123B.5 Variation in Flow.** The variation in flow during a filtration cycle shall not reduce the  
flow below 75 percent of the rate required in Section 3124B.

### **Section 3124B - Turnover Time.**

The recirculation and purification system shall have ~~sufficient~~ the capacity to provide a complete turnover of pool water in:

1. One-half hour or less for a spa pool.
2. One hour or less for a wading pool.
3. Two hours or less for a ~~temporary training~~ medical facility pool less than 500 square feet in water surface area.
4. Six hours or less for all other types of public pools except as provided in Article 2.

## **Section 3125B - Recirculation Piping System and Components**

**3125B.1 Line Sizes.** ~~Piping systems, including all parts and fittings other than inlet devices or venturi throats, shall be sized so that the flow velocity~~ The flow velocity of piping systems, including all parts and fittings other than inlet devices or venturi throats shall not exceed 10 feet per second (3.048 m/s), excepting that the flow velocity shall not exceed 8 feet per second (2.438 m/s) in any copper piping or in any pump suction piping. 6 feet per second in any suction or copper piping and 8 feet per second in any portion of the return system.

**3125B.2 Gauges for Filters.** ~~A gage shall be provided on each filter influent and effluent line. Each gage shall have a scale range approximately 1 1/4 times the maximum anticipated working pressure and shall be accurate within 2 percent of scale. A vacuum gage shall be provided for suction type filters.~~

Pressure gauges for filters shall be provided on each filter influent and effluent line. Influent and effluent gauges shall be located at the same elevation. Each gauge shall have a scale range 1 1/2 times the maximum working pressure and shall be accurate to within 2 pounds per square inch. A vacuum gauge shall be provided for suction-type filters having the same operational range and accuracy as pressure gauges.

**3125B.3 Flow meter.** ~~The recirculation system shall be provided with a flow meter, A flow meter shall be provided on each recirculation system, and all other water circulating systems, accurate to within 10 percent of actual flow.~~

**3125B.4 Hair and Lint Strainers.** A hair-and-lint strainer shall be provided on the suction side of the recirculation pump if the pump takes suction prior to filtration. A hair and lint strainer will not be required on pumps connected to vacuum-type filters, where the filter elements are not removed for cleaning.

**EXCEPTION:** ~~A pump used with a vacuum filter where the filter elements are not removed for cleaning.~~

**3125B.5 Backwash Piping.** Backwash Piping, including necessary valves, ~~conforming to~~  
~~Section 3125B.4~~ shall be provided for each filter vessel or element which ~~is of a type requiring~~  
requires periodic backwashing.

**3125B.6 Valves.** Valves ~~shall be accessible for operation and repair and~~ shall not be located  
~~under~~ in any required deck area surrounding a pool. Valves, ~~or other approved means of control,~~  
shall be installed on all recirculation, backwashing, and drain system lines which require shut off  
isolation, adjustment, or control of the rate of flow. Each valve shall be ~~identified with~~  
~~appropriate markings affixed directly to or near the valve~~ labeled as to its purpose.

## **Section 3126B - Recirculation Pump Capacity.**

**3126B.1** Pool recirculation Pumps shall have ~~design capacity at the following heads~~ the following head capacities:

1. **Pressure diatomaceous earth filters** - At least 60 feet (~~18288 mm~~).
2. **Vacuum diatomaceous earth filters** - Twenty inches (~~508 mm~~) vacuum on the suction side and 40 feet (~~12192 mm~~) total head.
3. **Rapid sand filters** - At least 45 feet (~~13716 mm~~).
4. **High rate sand filters** - At least 60 feet (~~18288 mm~~).
5. **Cartridge filters** - At least 60 feet.

**3126B.2** 6. Pumps with other hydraulic (flow-head) characteristics shall be permitted which comply with the flow capacity in Section 3124B provided the turnover times are attained as required in Section 3124B.

## **Section 3127B - Water Supply Inlets.**

**3127B.1 General.** ~~Each~~ The pool shall be supplied with potable water by means of a permanently installed pipeline from a public water supply system holding a permit from either the Department of Health Services or ~~from another approved source~~ the enforcing agency.

**EXCEPTION:** ~~The enforcing agency may exempt spa pools, temporary pools, and pools less than 1,500 gallons (5876 L) capacity from having to use permanently installed fill lines.~~

**3127B.2 Backflow Prevention.** There shall ~~not be a~~ be no direct connection between any domestic potable water supply system and the pool or its piping system unless protected ~~against backflow in an approved manner~~ by a backflow prevention device as required by the Department of Health Services provided under Health and Safety Code Sections 116800-80.

**3127B.3 Air-Gap Separation for Pool Over-the-Rim Fill Inlets.** Water supply inlets to a pool shall be installed and maintained to have not less than 1 inch (~~25 mm~~) or less than two pipe diameters, whichever is greater, to a maximum of a 6-inch clearance above the overflow rim of the pool. Over-the-rim spouts shall be ~~installed under a diving board or shall be properly guarded to prevent tripping~~ located so as not to create a tripping hazard.

**EXCEPTION:** ~~Vacuum, breakers, or other backflow prevention devices, may be used instead of air gap separation. Such devices shall be installed on the discharge side of the last inlet valve with the critical level not less than 6 inches (152 mm) above the overflow rim of the swimming pool.~~

**3127B.4 Below-Rim-Fill Inlet.** A below-rim-fill inlet system shall have a backflow prevention device as required by the Department of Health Services under Health and Safety Code Sections 116800-80 installed on the discharge side of the last inlet valve controlling make-

up water to the pool. The backflow device shall be installed in compliance with local plumbing codes. The top of the discharge inlet shall be located no more than 12 inches below the bond beam of the pool, at the water line tile, discharging directly into the pool.

## **Section 3128B - Filters (All Types).**

**~~3128B.1 General Requirements.~~** All filters, regardless of type, shall be designed and constructed to withstand normal continuous use without deterioration which could affect filter operation. Each filter shall comply with all of the following provisions:

- ~~1. Maintain clean and clear pool water under anticipated operating conditions.~~
- ~~2. Structural or functional failures shall not permit the passage of unfiltered water.~~
- ~~3. Filtration surfaces shall be easily disassembled and inspected.~~
- ~~4. Filtration surfaces shall be easily restored to the design capacity.~~
- ~~5. Filter parts shall be capable of resisting electrolytic corrosion (galvanic electric currents) due to the use of dissimilar metals.~~

**~~3128B.2 Maximum Pressure Drop.~~** The maximum pressure drop of a pressure type filter, measured from the filter housing inlet to the filter housing discharge, shall not exceed 3 pounds per square inch gage (psig) (20.68kPa gage) when initially operating at design flow rate.

**~~3128B.3~~ 3128B.1 Installation.** Each filter vessel and element shall be installed, piped and provided with necessary valves so that it can be isolated from the recirculation system for repairs and backwashed individually backwashing.

**~~3128B.4~~ 3128B.2 Air Release.** When the design of the filter permits accumulation of air in the top of the housing or vessel, the filter vessel shall be equipped with an air-release valve ~~connected~~ installed at the top of the housing that will ~~expel the air which enters the filter vessel~~ or tank allow for the release of trapped air.

~~3138B.5~~ **3128B.3** **Underdrain System.** The underdrain system for sand filters shall provide uniform distribution and collection of the flow during filtering and backwashing. The ~~underdrain~~ system shall be constructed of ~~corrosion-resistant~~ a material ~~and shall be~~ that is non-clogging.

~~3128B.6~~ **Freeboard.** For sand filters, ~~not less than 10 inches (254 mm) of freeboard shall be provided between the upper surface of the filter sand and the lowest portion of the pipes or drains which serve as overflows during backwashing.~~

## **Section 3129B - Rapid Sand Pressure Filters.**

In addition to the requirements for all filters as indicated in Section 3128B, the following apply to rapid sand pressure filters:

**3129B.1 Flow Rates.** The filtration rate shall not exceed 3 ~~gallons per minute~~ (gpm) per square foot (~~122.24 L/m per sq m~~) of filter area. The ~~design~~ backwash rate shall not be less than ~~12~~ 15 gpm per square foot (~~488.96 L/m per sq m~~) of the filter area.

**3129B.2 Filter Media.** The filter shall contain not less than 20 ~~inches of~~ inch (~~508 mm~~) depth of sand and not less than a 10 ~~inches~~ (~~254 mm~~) depth of filter gravel above the underdrain system.

**3129B.2.1** The filter sand shall have an effective particle size ~~of 0.3 to 0.5 mm~~ between 0.40 and 0.55 millimeters (#30 mesh) and a uniformity coefficient ~~of not more than~~ not exceeding 1.75.

**3129B.2.2** The filter gravel shall be ~~graded~~ sized and placed to provide uniform flow distribution from the underdrain system and to support the bed of filter sand without loss of sand to the pool or without development of jet streams or channeling in the filtration media.

**3129B.3 Coagulant Addition.** ~~Facilities with dosage control features shall be provided for adding coagulating chemicals ahead of the filter when required by the enforcing agency.~~

## **Section 3130B - Diatomaceous Earth Filters.**

In addition to the requirements for all filters as indicated in Section 3128B, the following apply to diatomaceous earth filters:

**3130B.1 Flow Rates.** The filtration rate for both pressure and vacuum-type diatomaceous earth filters shall not exceed 2 gpm per square foot (81.49 L/m per sq m) ~~excepting that filters designed for continuous feeding of filter aid shall not exceed 2 1/2 gpm per square foot (101.87 L/m per sq m) of filter area.~~

**Note:** ~~See also Section 3128B for other requirements.~~

**3130B.2 Precoating.** ~~Provisions shall be made for precoating with diatomaceous earth filter aid. Continuous feeding of filter aid shall be required in a pool with a water surface area 2000 square feet (186 sq m) or more, and the continuous feeding equipment shall be capable of feeding not less than 0.1 pound (0.045 kg) per 24 hours per square foot (0.093 per sq m) of filter area.~~

## **Section 3131B - High Rate Sand Filters.**

In addition to the requirements for all filters as indicated in Section 3128B, the following apply to high rate sand filters:

~~**3131B.1 Permissible Use.** Sand filters operating at filtration rates higher than the maximum rate specified in Section 3129B shall be permitted by the enforcing agency under the conditions as set forth in Section 3105B.~~

~~**3131B.2 Design and Operating Requirements.** A sand filter permitted under Sections 3105B.1, 3105B.2 and 3105B.3 shall comply with the following requirements instead of the requirements contained in Section 3129B.~~

- ~~1. The filter shall contain not less than 12 inches (305 mm) of depth of filter sand.~~
- ~~2. **3131B.1** The filter sand shall not have an effective particle size greater than 0.45 mm between 0.40 and 0.55 millimeters (#30 mesh) and a uniformity coefficient not greater exceeding 1.50 1.75.~~
- ~~3. **3131B.2** The design backwash rate shall not be less than 15 gpm per square foot (611.21 L/m per sq m) of filter area filtration rate for a high rate sand filter shall be that specified by the ANSI/ NSF International Standard 50.~~
- ~~4. The filter bed shall not show any signs of migration or vary more than 1 inch (25 mm) on the surface after 15 minutes of backwashing followed by 15 minutes of filtration.~~

~~**Note:** See Section 3128B for other requirements.~~

**3131B.3** The backwash rate for a high rate sand filter shall be a minimum of 15 gpm per square foot of filter area.

**Section 3132B --~~Chemical Feeders~~ Cartridge Filters.**

In addition to the requirements for all filters as indicated in Section 3128B, the following apply to cartridge filters:

**3132B.1** The filtration rate shall not exceed 0.375 gpm per square foot of filter area.

**3132B.2** Cleaning of cartridge filters shall be done in such a manner as not to cause a nuisance.

An approved wash-down area shall be provided in the pool equipment area, with discharge connected to a waste disposal system approved by the local waste discharge agency. Cartridge filter cleaning shall be done in a wash-down area provided in the pool equipment area.

**3132B.3** Cartridge filters shall have permanently installed drainage piping discharging to the public sewer or waste water discharge system approved by the local waste discharge agency via an air gap separation for the purposes of draining the entire contents of the filter vessel.

**3132B.4** An additional set of filter elements shall be available for installation while the existing filter elements are cleaned and dried.

## **Section ~~3132B~~ 3133B - Chemical Feeders.**

All chemical feeders, including ~~disinfection feeders, and the auxiliary~~ those used for solutions, slurries, or solids and parts such as pumps, strainers, tubing connections, tanks, injection fittings and other similar components shall comply with the provisions of this section.

**NOTE:** ~~Chemical feeders include those used for solutions, slurries or solids and also include auxiliary parts such as pumps, strainers, tubing connections, tanks, injection fittings and other required components.~~

**~~3132B.1~~ 3133B.1 General Design Requirements.** Chemical feeder equipment ~~shall comply with all of the following:~~

1. ~~Equipment~~ Shall be capable of being easily disassembled for cleaning and repair.
2. ~~Equipment shall be constructed of corrosion resistant materials.~~
3. ~~Equipment shall be constructed to permit repeated adjustments without loss of output rate accuracy if equipped with an adjustable output rate device.~~
4. ~~2. Equipment s~~Shall be constructed ~~to minimize a stoppage from chemicals intended to be used therein or from foreign materials that may be contained in said chemicals~~ with an adjustable output rate device to permit repeated adjustments without loss of output rate accuracy.
3. Shall meet the applicable criteria in ANSI/NSF International Standard 50.

**~~3132B.2~~ 3133B.2 Piping.** Piping used for the chemical feeder and its auxiliary equipment shall be resistant to ~~the chemical and erosion action of the chemicals intended to be used therein and corrosion or chemical deterioration.~~ Piping shall be installed to permit cleaning or otherwise to prevent clogging of the parts with chemicals and prevent uncontrolled discharge or siphonage of chemicals and fumes directly into the pool, its recirculation system, or the pool area.

**~~3132B.3~~ 3133B.3 Installation.** The chemical feeders and its their auxiliary equipment components shall be constructed and installed to prevent uncontrolled discharge or siphonage of chemicals and fumes directly into the pool, its recirculation system or the pool area.

## **Section ~~3133B~~ 3134B - Disinfectant Feeders**

Disinfectant feeders shall comply with ~~the provisions contained in this section in addition to the provisions contained in Section 3132B~~ applicable requirements established by the most current version of ANSI/NSF International Standard 50 for disinfectant feeders. In addition to the requirements for chemical feeders as indicated in Section 3133B, the following apply to disinfectant feeders:

**~~3133B.1~~ 3134B.1 Minimum Capacity.** ~~The~~ All disinfectant feeders shall be capable of supplying not less than the equivalent of ~~3 2~~ pounds (~~1kg~~) of 100% available chlorine per day (~~PPD~~) per 10,000 gallons (~~37850 L~~) of pool water capacity.

**~~EXCEPTION:~~** ~~A feeder of lesser capacity shall be permitted when it can be demonstrated to the enforcing agency that the lesser capacity feeder can comply with the disinfection requirements of Section 65529, Title 22, Chapter 20, California Code of Regulations.~~

**~~3133B.2~~ 3134B.2 Rate of Flow Adjustment.** Each feeder shall have a graduated ~~and clearly marked flow adjustment feature~~ control device capable of providing disinfectant flows from 25 percent to 100 percent of rated capacity. ~~The graduated markings and~~ shall be accurate to within 10 percent of the flow rate at any setting. A visible means of determining the rate of flow through the device shall be provided for each disinfectant feeder.

**~~3133B.3~~ 3134B.3 Compressed Chlorine Gas Disinfectant Equipment.** ~~Compressed chlorine gas disinfectant equipment shall comply with the provisions contained in this section in addition to the provisions contained in Sections 3133B.1 and 3133B.2.~~ Chlorine gas shall not be dispensed directly into the water of a pool, except as an aqueous solution through the return line of the recirculation system.

~~**Note:** See Section 3122B for special construction requirements of a room containing compressed chlorine gas disinfectant equipment.~~

**~~3133.3.1~~ 3134B.3.1 Chlorine Compressed Gas Containers.** Each compressed chlorine gas container or cylinder shall be ~~firmly~~ secured to prevent accidental movement. A ~~precaution~~ valve protection cap shall be provided ~~in place to cover the discharge valve~~ at all times when the cylinder is not connected to the ~~chlorinator~~ dispensing system.

**~~3133.3.2~~ 3134B.3.2 Container Scale.** A ~~means of weighing~~ compressed gas chlorine containers in use shall be ~~provided~~ on a scale in the gas chlorinator room.

**~~3133B.3.3~~ 3134B.3.3 Chlorine Feeding Device.** ~~In addition to the requirements contained in Section 3133B.1, the chlorine feeding device shall be capable of delivering chlorine in aqueous solution at the maximum design rate.~~ The chlorine-feeding device shall not allow the backflow of pool water into the chlorine ~~solution~~ container. The device shall not allow the release of chlorine gas to the atmosphere under normal operating conditions. The devices shall be designed and installed to conduct chlorine gas leaks to the outdoors during ~~an accident~~ a release of chlorine gas or an interruption of the water supply.

**~~3133B.3.4~~ 3134B.3.4 Piping.** Piping carrying chlorine gas under pressure shall not be located outside the gas chlorination equipment room.

### **Section 3135B - Gas Chlorination Equipment Room**

Compressed chlorine gas storage containers and auxiliary components shall be installed indoors in a separate room of not less than 1 hour fire resistant construction and shall comply with all of the following:

**3135B.1 Location.** The gas chlorination equipment room shall not be located in any habitable building and shall not be located below ground level.

**3135B.2 Entry.** The entry door to the room shall open onto the exterior of the building or structure and shall not open directly towards the pool or pool deck.

**3135B.3 Ventilation.** A mechanical exhaust ventilation system shall provide a minimum of 60 air changes per hour. The exhaust shall be taken at a point within 6 inches of the floor level. The exhaust shall be vented to the outside and the point of discharge shall be at least 10 feet from openable windows, the pool area, adjacent buildings, or above the adjoining grade level. Fresh air intakes directly connected with the outdoors shall be located within 6 inches of the ceiling.

**3135B.4 Alarm.** An audible and visual chlorine detection/alarm system shall be located in the room containing the gas chlorine equipment. The sensor shall be located within 6 inches of the floor level. The system shall activate when chlorine concentrations in the room reach a Permissible Exposure Limit of 0.5 ppm. Activation of the alarm shall shut off the chlorine system and turn on the lights and ventilation system. The alarm system shall consist of the following:

1. An audible alarm capable of producing a sound level of at least 90 decibels.
2. A visual alarm consisting of a flashing light, which is mounted directly over the entrance of the chlorine equipment room. The light shall be visible during daylight hours.

**3135B.5 Illumination.** Artificial illumination of at least 50 foot-candles as measured 30 inches from the floor shall be provided in the room.

**3135B.6 Switches.** Switches for the control of artificial lighting and ventilation shall be located outside the room, adjacent to the entry door.

**3135B.7 Storage.** The gas chlorine room shall not be used for the storage of items not related to the use of the gas chlorine equipment.

### **Section ~~3134B~~ 3136B - Pool Skimmers Fittings.**

~~The pool shall be equipped with one or more skimming methods which, when combined, shall be capable of continually withdrawing not less than 75 percent of the required circulation capacity, to provide continuous skimming of the water surface, and to provide an overflow drainage system.~~

The pool shall be equipped with one or more skimming methods to provide continuous skimming of the pool water. Skimmers, when used singly or in combination, shall be capable of continually withdrawing not less than 75 percent of the required flow rate.

**~~3134B.1~~ 3136B.1 Surface Skimmers.** Each surface skimmer shall comply with ~~all of the~~ following provisions:

1. The skimmer shall be ~~of the~~ a built-in type, recessed into the pool wall.
2. ~~Each~~ The skimmer shall be individually adjustable for the rate of flow with either an external or internal device. All skimmers not interconnected with the main drain shall be equipped with an equalizer valve.
3. A skimmer equalizer opening in the pool sidewall shall be covered with a tamper-proof anti-hair entrapment safety cover.
- ~~3~~ 4. The skimmer weir shall automatically adjust to variations in the pool water level over a range of not less than 4 inches (~~102 mm~~).
- ~~4-5.~~ The skimmer shall be provided with an air-lock protective device. ~~which shall not permit leakage of air into the recirculation suction piping system. This device shall not leak more than 3 gpm (11.356 L/m) of water during normal operation.~~

~~5~~ 6. Each skimmer shall be provided with a removable and cleanable screen or basket to trap ~~large solids~~ objects. The screen or basket shall be accessible through an opening in the deck above the skimmer.

~~6~~ 7. There shall be ~~not less than~~ a minimum of one skimmer for each every 500 square feet (~~46.45 sq m~~) of pool water surface area, or fractional part thereof.

~~7. The skimmer shall be constructed with suitable materials and methods to withstand anticipated use operational conditions.~~

8. Each skimmer shall be located ~~in relation to pool inlets to aid to~~ optimize recirculation and surface skimming.

**EXCEPTION:** ~~Skimmers shall not be used as the required overflow devices on a pool with a water surface area over 5,000 square feet (464.52 sq m).~~

**~~3134B.2~~ 3136B.2 Perimeter Overflow Systems.** A perimeter overflow system shall be required in pools whose water surface area equals or exceeds 3,000 square feet. Perimeter overflow systems shall comply with all of the following provisions:

1. **Location.** The overflow system shall be built into the perimeter of the pool walls and extend completely around the pool ~~except where steps require interruption.~~

2. **Channel Detail.** The overflow channel shall be not less than 3 inches (~~76 mm~~) deep, the section shall not diverge with depth of the channel, and the width of the bottom shall be not less than 3 inches (~~76 mm~~). The opening beneath the coping into the overflow system shall be a minimum of 4 inches (~~102 mm~~) beneath the coping in any direction measured radially from the inner edge of the overflow channel lip.

3. **Channel Lip.** The overflow channel lip shall not be more than 12 inches (~~305 mm~~) below the level of the deck. The lip edge shall be rounded and shall not be thicker than 2 1/2 inches (~~64 mm~~) or thinner than 1 inch (~~25 mm~~) from the top 2 inches (~~51 mm~~).

4. **Channel Covering.** Covered overflow channels shall be permitted providing ~~ed a bather cannot enter it or get his arms or legs caught in the cover~~ the openings do not exceed 1/4 inch in the smaller dimension.

5. **Channel Outlets.** Overflow channel outlets shall be not less than 2 1/2 inches (~~64 mm~~) in diameter spaced not more than 15 feet (~~4572 mm~~) apart, and the channel bottom slope to the channel drain shall be not less than 1/2 inch (6.4 mm) per foot :

**EXCEPTION:** ~~Other drain~~ Alternate channel outlet spacing or and channel bottom slope shall be ~~permitted if hydraulically designed in accordance with acceptable engineering principles~~ approved by a engineer qualified in this type of application and it is demonstrated to be equivalent to the requirements of this Article.

6. **Channel Outlet Covers.** Overflow channel outlets shall be provided with a clear opening area in the grating not less than 1.5 times the cross-sectional area of the outlet ~~required in Section 3134B.~~ Openings of the channel outlet covers shall not exceed 1/2 inch in the smaller dimension.

7. ~~Overflow~~ **Channel Drain Piping.** ~~Overflow~~ Channel drain piping shall provide drainage of the overflow system, carry overflow water to a surge storage chamber, and ~~shall~~ establish hydraulic equilibrium in the pool and return to skimming within 10 minutes after being flooded by a sudden ~~large use~~ displacement of the pool water by ~~bathers~~ pool users.

8. **Surge Storage Capacity.** A perimeter overflow system shall be provided with a minimum surge storage capacity of not less than 1 gallon per square foot (~~40.75 L/sq m~~) of pool water

surface area. Surge storage shall be permitted in the perimeter overflow channel, and in the overflow water drain piping returning to the surge chamber and in the surge chamber provided the system is evaluated and certified by a California registered professional engineer qualified in this type of application. The surge chamber shall be sized to contain all surge water.

9. ~~Surge flow~~ **Water Level Control**. Automatic makeup (~~fresh~~) water- flow controls with a manual override ~~provision~~ control shall be provided to maintain the proper ~~operating~~ pool water level. The water line shall be the midpoint of the operating range of the skimmers. For overflow systems, the water line shall be the top edge of the overflow rim.

### **3137B - Pool Fittings.**

~~3134B.3~~ **3137B.1 Outlets.** Each pool shall be provided with a bottom main drain and outlets located in the deepest part of the pool through which circulation shall take place and by which the pool can be emptied. ~~The bottom drain and recirculation outlets shall be covered with grates or other protective devices which shall be removable only with tools. Slots or openings in grates or covers shall not exceed 1/2 inch (12.7 mm) in the smaller dimension and shall be of such area, shape and arrangement to prevent physical entrapment or a suction hazard to bathers.~~

**EXCEPTION:** ~~Recirculation outlets for a spa pool shall be either a safety type which cannot be completely covered by any part of the body, or shall be installed in duplicate so as to prevent a suction hazard to bathers.~~

Suction outlets shall comply with all of the following provisions:

1. Each pump on a pool circulation system shall be connected to at least two suction grate assemblies located at least 3 feet apart or, when not physically possible, on different design planes.
2. Suction grates shall be secured with fasteners, which can only be removed with tools. The openings of all grate covers shall not exceed 1/2 inch in the smaller dimension and shall be of such area, shape and arrangement to prevent physical entrapment.
3. The velocity in the pump suction hydraulic system shall not exceed 6 feet per second when 100 percent of the pump flow comes from the drain system and any drain suction fitting in the system is completely blocked.

4. All suction plumbing shall be connected at a point on the pipe an equal distance between the two drains known as a "T" connection. Both branches of the "T" shall have the same size piping as the main suction plumbing.

5. The water velocity across any suction grate shall not exceed 1.5 feet per second.

6. The clearance between the bottom of the grate and the opening of the suction plumbing and the bottom of the drain sump shall be equal to 2 inches or the largest suction pipe diameter in the drain cavity, whichever is greater.

**3134B.4** 7. Hydrostatic Relief Devices. In areas of anticipated high ground water table an approved hydrostatic relief device shall be installed in the main drain.

~~**3134B.5** Inlet Fittings. Each pool shall be provided with not less than two recirculation system inlets for the first 10,000 gallons (37 850 L) capacity and one additional inlet for each additional 10,000 gallons (37 850 L) capacity, or fractional part thereof.~~

~~**EXCEPTION:** A spa pool shall be provided with not less than one inlet.~~

~~**3134B.5.1 Construction.** Inlet fittings shall not protrude greater than 1 1/4 inches (32 mm) into the pool and shall be shaped, rounded and smooth.~~

~~**3134B.5.2** Inlet fittings shall be located greater than 18 inches (457 mm) below the water line, except for a spa pool or wading pool. One inlet shall be provided for each 10,000 gallons (37 850 L) of pool capacity for a pool which exceeds 40 feet (12 192 mm) in width. Inlet fittings shall be separated by at least 10 feet (3048 mm) and shall be located to ensure uniform circulation.~~

~~**3134B.5.3 Adjustment.** Provisions shall be made for adjusting the volume of flow through each inlet. Wall inlets shall be capable of adjusting the direction of flow and to produce sufficient velocity to impart a substantial circulatory movement to the pool water.~~

### **3137B.2 Return Inlet Fittings**

**1. General.** Each pool shall be provided with not less than two inlets for the first 10,000 gallons capacity and one additional inlet for each additional 10,000 gallons capacity or fraction thereof.

**2. Construction.** Inlet fittings shall not protrude greater than 1 1/4 inches into the pool and shall be shaped to be round and smooth.

**3. Adjustment.** Wall inlets shall be equipped with an adjustable flow and direction fitting.

**4. Location.** Inlet fittings shall be located greater than 18 inches below the water level, except for a spa pool or wading pool. Inlets for spa pools shall be located greater than 14 inches below the water level. Wading pool inlets shall be located at the lowest point of the sidewall. Inlets, both floor and wall mounted, shall not be located closer than 5 feet to skimmers and 5 feet to main drains or other inlets.

**EXCEPTION:** Inlet and skimmer separations shall not apply to spa pools.

**5. Floor Inlets.** Pools greater than 40 feet in width or more than 3,000 square feet in surface area shall have floor mounted return inlets. The number of floor inlets shall be in compliance with number (1) above. All floor inlet fittings shall be located to provide uniform circulation, and shall be installed so as to be flush with the surface of the pool bottom.

**Section ~~3135B~~ 3138B - Spa Pool Special Requirements.**

**~~3135B.1~~ 3138B.1 Aeration System.** A spa pool aeration and/or jet system shall be completely separate from its ~~filtration~~ recirculation system and shall not be interconnected with any ~~non-spa~~ other pool.

**~~3135B.2~~ 3138B.2 Maximum Operating Temperature.** The ~~maximum~~ allowable water temperature ~~shall be of a spa pool shall not exceed 104 °F (57.8 °C) for a spa pool degrees Fahrenheit.~~

**3138B.3 Surface Area.** The water surface area of a spa pool shall not exceed 200 square feet.

**3138B.4 Maximum Depth.** The water depth in a spa pool shall not exceed 3 1/2 feet.

**3138B.5 Emergency Shut-off Switch.** The spa pool shall have an emergency shut-off switch that shuts off all pumps and blowers. The switch shall be located in the pool enclosure no greater than 15 feet from the edge of the spa and be visible from the spa. There shall be 10 feet separation between the booster activation switch and the emergency shut-off switch.

### **Section 3139B - Solar Heating Installations**

**3139B.1** Solar heating systems installed on newly constructed pools built after the effective date of this Chapter shall not be interconnected with the pool recirculation system and shall comply with the following:

1. Solar heating systems shall remove water from the pool from at least 2 suction outlets located on the sidewall of the pool.
2. Solar heating system suction outlets and return inlets shall be located no closer than 5 feet to any pool water recirculation system fitting.

**Section ~~3136B~~ 3140B - Cleaning Systems.**

A ~~built-in or portable type~~ vacuum cleaning system shall be provided which is capable of removing sediment from all parts of the pool floor. ~~When jet-type units are used, they~~ A cleaning system using potable water shall be provided with an approved ~~type~~ backflow protection ~~for the water system.~~ device. No cleaning system shall remain in the pool, when the pool is open or available for use by pool users. Built-in vacuum suction lines shall not penetrate the pool wall.

## **Section ~~3137B~~ 3141B - Wastewater Disposal.**

**~~3137B.1~~ 3141B.1 General Requirements.** Material cleaned from filters, ~~waste water from temporary training pool showers,~~ and backwash water from any ~~pool~~ recirculation system shall be disposed of in a manner ~~which~~ that is acceptable by the local sewerage agency and will not create a (~~public~~) nuisance. Backwash water shall not be returned to a pool.

**~~3137B.1.1~~ 3141B.1.1 Sand Filters.** ~~In accordance with applicable local regulations, the backwash water from a sand filter shall be disposed of to a storm drain or sewer system, dry well, or, when approved, such water may be disposed of by surface or subsurface irrigation.~~

**~~3137B.1.2~~ 3141B.2 Diatomaceous Earth Filters.** The backwash ~~wastewater~~ from a diatomaceous earth filter shall discharge into a ~~receiving chamber~~ separation tank acceptable to the local sewerage agency and be installed to collect the waste diatomaceous earth mixture, ~~or, when approved, such waste shall be permitted to be disposed of by other means such as to a sanitary sewer.~~ and the wastewater shall be disposed of by discharge into a sanitary sewer system acceptable to the local sewerage agency.

**~~3137B.1.3~~ 3141B.3 Piping.** Sumps and drain piping shall have sufficient capacity to receive ~~pool~~ recirculation system backwash without overflow of the sump receiver. The sump shall not permit sewage to enter the surge chamber or the pool in the event of a sewage backup

**~~3137B.1.4~~ 3141B.4 Visual Indicator.** ~~A sight glass shall be installed on the waste water discharge line from a filter.~~

~~EXCEPTION: The sight glass shall not be required when an air gap connection from the filter vessel to a sewer or other drainage system is clearly visible to the operator during actual backwash operation.~~

Where direct observation of the backwash discharge is not visible to the operator during backwash operations, a sight glass shall be installed on the wastewater discharge line.

**3137B.2 3141B.5 Prohibited Connection.** ~~No direct connection of the pool or its recirculation system shall be permitted with a sanitary sewer, storm drain or drainage system. When permitted by local regulations, discharge to a sanitary sewer shall be through an air-gap type separation.~~ There shall be no direct connection between the pool, its recirculation system or overflow drain and any sanitary sewer, storm drain or drainage system. Discharges to a sanitary sewer, storm drain or drainage system shall be through an air-gap of two pipe diameters or 6 inches, whichever is less.

## **Section 3142B - Ozone**

**3142B.1 General Requirements.** The following apply when ozone-generating equipment is used:

1. A free halogen residual shall be maintained in the pool water at all times as required in Section 65529, Title 22 of the California Code of Regulations
2. The owner/operator submitting plans for an ozone generating system shall also obtain approval from the local building department, fire authority or other agencies regulating ozone generators before placing the ozone generating equipment into operation.
3. The ozone generating equipment shall be provided with a device to alert the operator when a component of the equipment is not operating.
4. Ozone shall be delivered to the pool recirculation system using a vacuum system such as a venturi, where a loss of vacuum will interrupt the flow of ozone.
5. Ozone generating equipment shall be equipped with an air flow meter and a device to control the airflow.
6. A check valve shall be installed between the ozone generator and the injection point.
7. The ozone injection point shall be located in the pool return line after the filtration and heating equipment, prior to the disinfectant injection point and a minimum of 10 feet from the nearest pool return inlet.
8. Ozone injection mixers, diffusers, or contact chambers shall provide thorough mixing of ozone with the recirculation water. The injection and mixing system shall not prevent the attainment of the turnover rate required in Section 3124B.

9. The ozone equipment room shall not be used for storage of chemicals, solvents or any combustible materials other than those required for the operation of the pool recirculation and ozone generating equipment.

10. There shall be an operating procedure manual containing information on the operation and maintenance of the ozone generating equipment including the responsibilities of workers in an emergency. All employees shall receive training in the operation and maintenance of ozone generating equipment prior to operating and maintaining such equipment. Refresher training of ozone equipment operation and maintenance procedures shall be conducted a minimum of once every 6 months.

**3142B.2 - Ozone Generating Equipment Located Indoors.** When ozone-generating equipment is located indoors the following apply:

1. The ozone concentration in the equipment room atmosphere shall not exceed 0.1 ppm. The room containing the ozone generating equipment shall have a ventilation system providing a minimum of 3 air changes per hour and have a separate automatic emergency ventilation system that will provide a minimum of 30 air changes per hour.

2. An audible and visual ozone detection/alarm system shall be located in the room containing the ozone generating equipment. The ozone sensor shall be located at a height of 5 feet above the floor level. The alarm system shall be capable of measuring ozone in the range of 0.1 to 5 ppm. The system shall activate when ozone concentrations reach 0.1 ppm in the room.

Activation of the alarm shall shut off the ozone generating equipment and turn on the lights and emergency ventilation system. The alarm system shall consist of the following:

a. An audible alarm capable of producing a sound level of at least 90 decibels.

b. A visual alarm consisting of a flashing light shall be mounted in plain view at the entrance of the ozone equipment room.

3. Clearly labeled on/off switches shall be located directly outside of the ozone room that control and indicate the following:

a. Emergency ventilation systems.

b. Lighting in the ozone room.

c. Ozone generator.

4. Exit doors from the ozone generating equipment room shall open outward.

**3142B.3 Ozone Removal.** The ozone contact concentration in the pool water shall not exceed 0.1 ppm. This may be accomplished by one of the following methods:

1. The ozone generating equipment shall have an ozone removal method such as a granular activated carbon, thermal decomposition or an ozone/bromine system that will reduce the contact concentration below 0.1 ppm prior to its introduction into the pool.

2. The ozone generating equipment shall be designed and sized using either of the following formulas so that the ozone contact concentration remains below 0.1 ppm.

a. Maximum Ozone Output Allowed in grams/hr = (75% of the required Flow Rate in gpm) x (0.02268)

b. Contact Concentration in mg/l = (Ozone Generated in grams/hr) x (4.41)  
(75% of the required flow rate in gpm)

**3142B.4 Automatic Shut-Off of Equipment.**

1. Ozone generating equipment shall automatically shut-off when any one of the following conditions occur:

a. Loss of electrical power to the pool recirculation pump or the ozone booster pump.

b. High or low ozone generator current per manufacturer's specifications.

c. Intake air flow falls below manufacturer's operational minimums.

d. Ozone generator door or panel is open.

2. For corona discharge ozone systems, ozone generating equipment shall automatically shut-off when any one of the following conditions occur:

a. Loss of water flow through the ozone generator.

b. High water vapor content of the intake air per manufacturer's specifications.

c. Loss of cooling capacity.

d. Leaks or failure of the oxygen generation equipment.

3. For ozone generating equipment not requiring an ozone removal system, ozone-generating equipment shall automatically shut-off when the recirculation system is operating below 75% of the turnover rate required in Section 3124B.

**3142B.5 Ozone Monitoring.** Pool recirculation water shall be monitored with an ORP (oxidation reduction potential) meter which will shut off the ozonator in the event the ORP meter reading exceeds 900 mV. The operational range shall be between a minimum of 650 mV and a maximum of 900 mV.

**EXCEPTION:** An ORP meter is not required when the ozone generating equipment does not require an ozone removal system.

**3142B.6 Testing.** Concentrations of ozone in the air space within 6 inches of the pool water surface shall be tested at the time ozone generating equipment is installed and annually thereafter and shall not exceed 0.1 ppm above the ambient air ozone concentration. Results of the test shall be provided to the enforcing agency.

## **ARTICLE 2 - RECREATIONAL WATER PARKS**

### **Section 3143B - Scope.**

The provisions of this Article shall apply to the construction, installation or alteration of water attractions located at Recreational Water Parks. All provisions of Chapter 31B, of Title 24, California Code of Regulations shall apply to water attractions at Recreational Water Parks unless specifically addressed in this Article.

## **Section 3144B - Design and Construction.**

**3144B.1** The following shall be included in the design and operation of water attractions:

1. Prevention of slips, falls and collisions with structures or other users.
2. Minimizing rider impact upon landing.
3. Elimination or reduction of structural, mechanical, electrical and environmental hazards through proper design.
4. Limitations of use based on the design of the attraction such as children versus adult use.
5. Development and posting of rules.
6. Provisions for effective communication between employees responsible for pool user safety.

**3144B.2** An engineer qualified in this type of application shall have the responsibility for the safe design and construction of water attractions located in Recreational Water Parks.

**3144B.3** An engineer qualified in this type of application shall inspect all structural elements of water attractions at Recreational Water Parks for safe operation and maintenance. The inspection shall be conducted on at least an annual basis. Seasonal facilities shall be inspected prior to opening. A copy of the report shall be provided to the enforcing agency.

**3144B.4** Landscaping shall be designed so that dirt, vegetation, runoff and any other materials from the landscaping do not enter attractions.

**3144B.5** First aid facilities shall be provided in sufficient numbers to meet the emergency needs of the Recreational Water Park.

**3144B.6** A lifeguard safety plan shall be established and submitted to the enforcing agency. The plan shall include lifeguard stationing and areas of responsibility and give consideration to conditions such as pool depths, wave action, line of sight, pool user load, training procedures,

emergency procedures, lifeguard rotation and other special conditions that affect the safety of pool users. Lifeguards shall receive periodic training in the recognition and prevention of safety hazards at the individual water park attractions where they are stationed. The number of lifeguards shall be adequate to maintain continuous surveillance of water attraction users in the water. Provisions for back-up lifeguard coverage shall be provided so that continuous surveillance is maintained during multiple rescues.

**3144B.7** Toilets, urinals and lavatories shall be provided as required by the current edition of the Uniform Plumbing Code, Appendix C, and Assembly Places for Public Use. The local enforcing agency shall approve the location of toilets, urinals and lavatories. The enforcing agency may approve a lesser number of showers than required in Section 3116B.2.1.

**Section 3145B - Flume Design and Construction.**

**3145B.1** The flume's structural design and materials used shall provide a sound, durable structure that safely sustains all anticipated static, dynamic and earth stresses.

**3145B.2** All surfaces and edges of flumes including components and appurtenances which a rider may contact shall be constructed, installed, and finished so that they will not constitute a cutting, pinching, puncturing or abrasion hazard under normal contact and use.

**3145B.3** Flumes shall be made of smooth, durable and easily cleanable materials that are impervious to moisture.

**3145B.4** Colors other than white may be allowed when approved by the enforcing agency.

**3145B.5** Discharge sections shall be designed so as to assure safe exit speeds, angles, and stopping distances appropriate to the depth and size of the landing pool. Multiple exit attractions into a common landing pool shall have discharge sections that prevent bodily collisions.

### **Section 3146B - Activity Pools**

**3146B.1** Projections and recessed areas may be permitted provided they do not contribute to trip, entanglement, and entrapment or abrasion hazards. There shall be no underwater obstructions.

**3146B.2** Handholds shall be required on sidewalls where the water depth exceeds 18 inches.

**3146B.3** The turnover rate shall be a maximum of 6 hours.

**3146B.4** Water attractions may be exempt from perimeter overflow skimming systems, when approved by the enforcing agency.

**3146B.5** A zero water depth shall be allowed provided perimeter overflow skimming is provided along the entire section with the zero water depth.

### **Section 3147B - Entry and Intermediate Pools**

**3147B.1** The maximum water depth of the attraction shall be posted at the entrance to the water attraction. Depth markers shall also be provided at other locations in entry and intermediate pools as required by the enforcing agency.

**3147B.2** A continuous handhold shall be required on sidewalls where the water depth exceeds 18 inches.

**3147B.3** A maximum pool user capacity sign shall not be required.

**3147B.4** The turnover rate shall be determined by the following formula:

$$\text{Turnover Time in hours} = \frac{(\text{Pool Volume in gallons})}{(\text{Maximum pool user load per hour}) \times (75)}$$
  
-  
or 6 hours, whichever is less.

### **Section 3148B - Landing Pools**

**3148B.1** At least 1 handrail per 10 feet of exit area shall be provided at stairs.

**3148B.2** A maximum pool user capacity sign shall not be required.

**3148B.3** The deck area at the exit end of the landing pool shall be a minimum of 6 feet wide.

**3148B.4** The turnover rate shall be determined by the following formula:

$$\text{Turnover Time in hours} = \frac{(\text{Pool Volume in gallons})}{(\text{Maximum pool user load per hour}) \times (75)}$$

or 6 hours, whichever is less.

**3148B.5** The skimming system shall provide continuous skimming of the water during changes in water level during various phases of operation.

### **Section 3149B - Run-out Slide**

**3149B.1** Section 3109B, Title 24 California Code of Regulations, pool geometry, shall not be applicable to run-out slides.

**3149B.2** The deck area shall be a minimum of 4 feet wide between two adjacent run-out slides.

**3149B.3** A maximum pool user capacity sign is not required.

**3149B.4** The turnover rate shall be determined by the following formula:

$$\text{Turnover Time in hours} = \frac{(\text{Pool Volume in gallons})}{(\text{Maximum pool user load per hour}) \times (75)}$$

or 6 hours, whichever is less.

**3149B.5** Alternative methods of skimming may be used when approved by the enforcing agency.

**Section 3150B - WaterCourse Ride.**

**3150B.1** There shall be no projections or recesses except for recessed stairs. Handrails and stairs shall not project into the watercourse. All inlets and outlets shall be constructed and installed so they do not present a hazard.

**3150B.2** A maximum pool user capacity sign shall not be required.

**3150B.3** A water course ride shall have a minimum width of 12 feet and a maximum water depth of 4 feet.

**3150B.4** Exits shall be provided a minimum of every 200 feet.

**3150B.5** A minimum 6 foot unobstructed deck shall be provided on at least one side of the attraction along the entire perimeter.

**3150B.6** The turnover rate shall be a maximum of 6 hours.

**3150B.7** Alternative methods of skimming may be used when approved by the enforcing agency.

### **Section 3151B - Wave Pools**

**3151B.1** Step holes shall be recessed such that the outer edges are flush with the vertical pool wall. Handrails and step holes shall extend down the pool wall so that they will be easily accessible at the lowest water level during wave action.

**3151B.2** Alternative handholds that are flush with the vertical pool wall may be allowed if approved by the enforcing agency. Handholds are not required in areas of wave pools where the static water level is less than 18 inches.

**3151B.3** The turnover rate shall be a maximum of 6 hours.

**3151B.4** A zero water depth may be allowed provided perimeter overflow skimming is provided along the entire section with the zero water depth.

**3151B.5** A clearly labeled emergency shut-off switch for the control of the wave action shall be installed at each permanent lifeguard station.

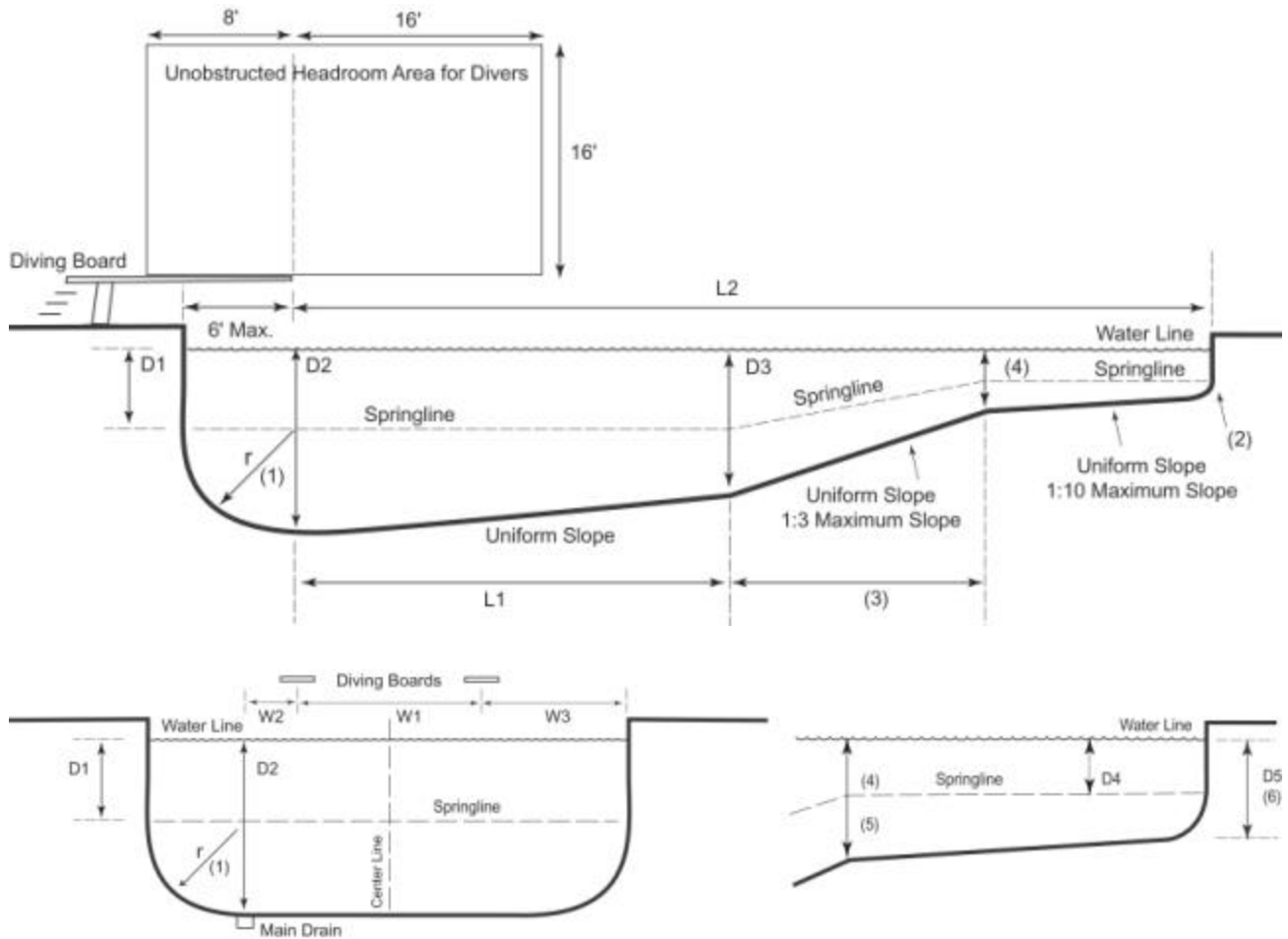
**3151B.6** Signs with clearly legible letters not less than 4 inches high shall be posted in conspicuous places and shall state "NO DIVING ALLOWED".

## Figure 31B-1

Depths and Clearances for Pools with Diving Boards

Greater than 30 Inches Above the Water Line

### Longitudinal Section



### Transverse Section

through Main Drain, Deep End

### Enlarged Shallow End Section

Table 31B-1

		Depth of Water					Length of Section				
Boards & Platforms	Dim.	D1	D2	D3	D4	D5	L1	L2	W1	W2	W3
1-Meter Board	Min.	6' 0"	12' 0"	11' 0"	2' 6"	0' 0"	20' 0"	30' 0"	10' 0"	5' 0"	11' 0"
3-Meter Board	Min.	7' 0"	13' 0"	12' 0"	2' 6"	0' 0"	20' 0"	40' 0"	10' 0"	5' 0"	12' 0"

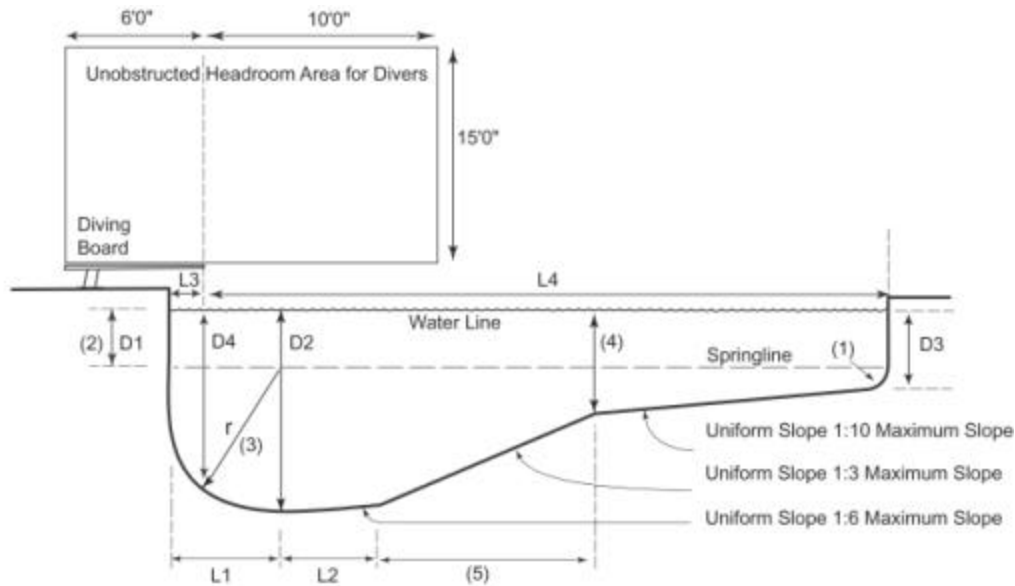
Notes for Figure 31B-1 and Table 31B-1:

- (1) Maximum radius shall equal D2 minus D1 dimensions.
- (2) Radius at the shallow end shall not be less than 6 inches nor more than 12 inches.
- (3) Length of section based on maximum slope and other maximum and minimum dimensions.
- (4) Where there is a break in slope, the break shall be located at a water depth equal to 4'6".
- (5) The springline depth at (4) shall not be less than 2'6" nor more than 4'0".
- (6) The maximum water depth shall be 3'6".

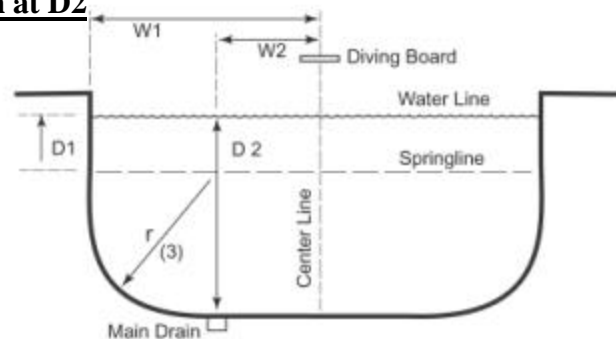
**Figure 31B-2**

# Depths and Clearances for Pools with Diving Boards 30 Inches or Less Above the Water Line

## Longitudinal Section



## Transverse Section at D2



**Table 31B-2**

Dimension	Depth of Water				Length of Section					
	D1	D2	D3	D4	L1	L2	L3	L4	W1	W2
Minimum	2' 6"	8'6"	0'0"	7'0"	6'0"	6'0"	2' 6"	30'0"	9'0"	3'0"
Maximum	---	---	3'6"	---	10'0"	---	4'0"	---	---	---

Notes for Figure 31B-2 and Table 31B-2:

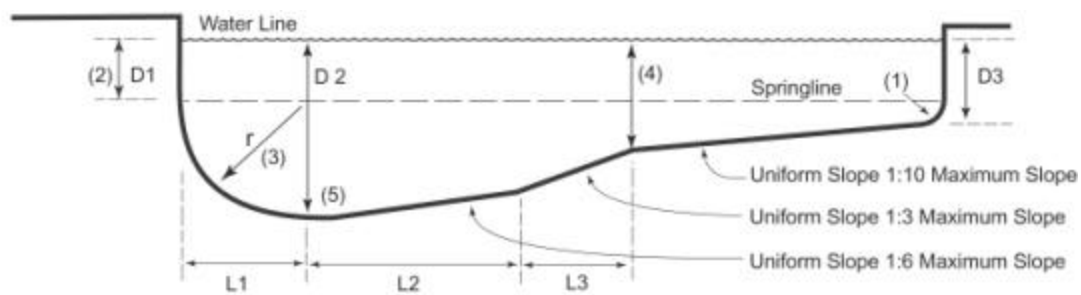
- (1) Radius at the shallow end shall have a minimum 0'6" and a maximum 1'0".
- (2) Springline D1 shall extend to the break in slope between the shallow area and the deep area.
- (3) Maximum radius shall equal D2 minus D1 dimensions.
- (4) Where there is a break in slope, the break in slope shall be located at a water depth equal to 4'6".
- (5) Length of section based on maximum slope and other maximum and minimum dimensions.



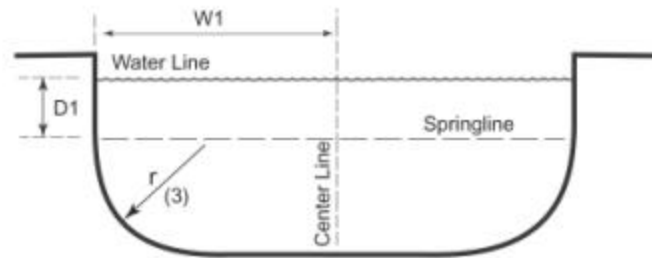
**Figure 31B-3**

## Depths and Clearances for Pools without Diving Boards

### Longitudinal Section



### Transverse Section at D2



**Table 31B-3a**

Pools with Maximum Water Depth = 6'0"

	Depth of Water			Length of Section			
Dimension	D1	D2	D3	L1	L2	L3	W1
Minimum	2' 6"	(5)	0'0"	3'6"	3'0"	3'0"	6'0"
Maximum	---	6'0"	3'6"	---	---	---	---

**Table 31B-3b**

Pools with Maximum Water Depth > 6'0"

	Depth of Water			Length of Section		
Dimension	D1	D2	D3	L1	L2	W1
Minimum	2' 6"	(5)	0'0"	3'6"	3'0"	7'6"
Maximum	---	---	3'6"	---	---	---

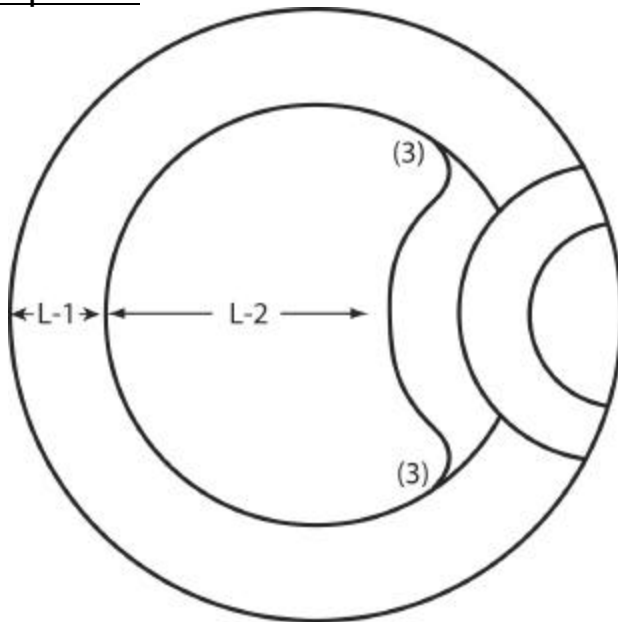
Notes for Figure 31B-3, and Tables 31B-3a and 31B-3b:  
(6) Radius at the shallow end shall have a minimum 0'6" and a maximum 1'0".

- (7) Springline D1 shall extend to the break in slope between the shallow area and the deep area.
- (8) Maximum radius shall equal D2 minus D1 dimensions.
- (9) Where there is a break in slope, the break in slope shall be located at a water depth equal to 4'6".
- (10) Main drain shall be located to provide complete drainage of the pool.

Figure 31B-4

## Depths and Dimensions for Spa Pools

### Top View



### Transverse Section

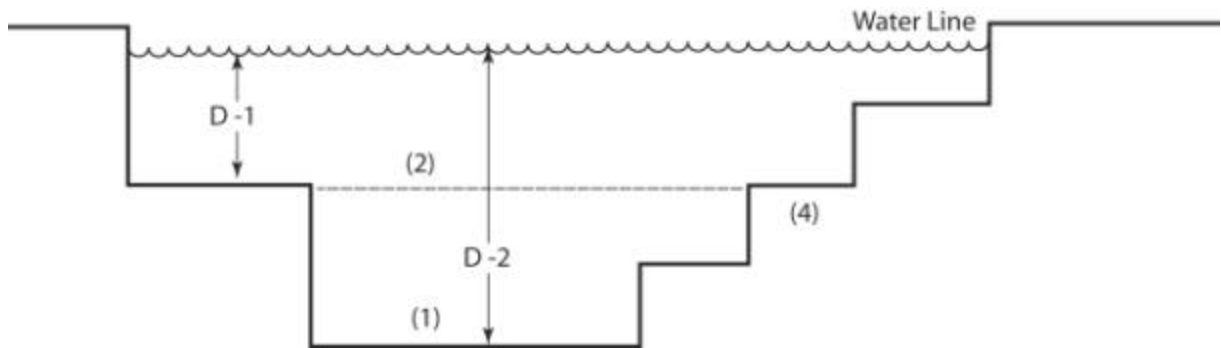


Table 31B - 4

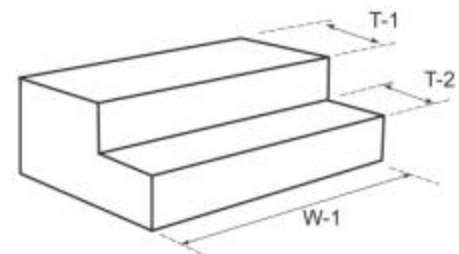
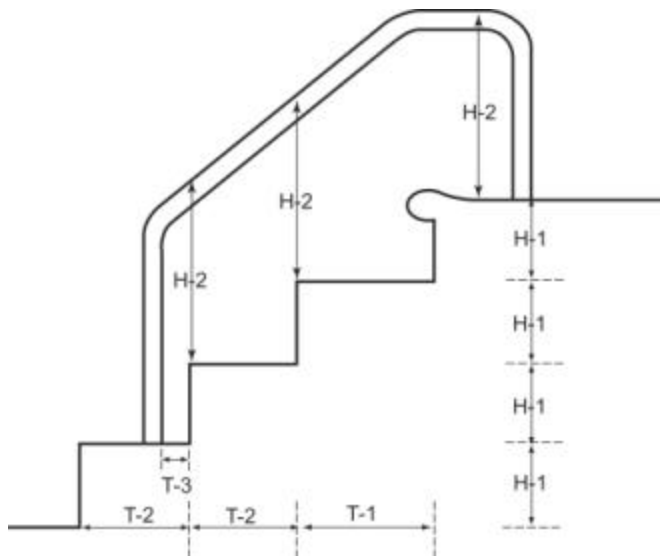
	<u>Depth of Water</u>		<u>Length of Sections</u>	
Dimension	D - 1	D - 2	L - 1	L - 2
Minimum	-----	24"	12"	24"
Maximum	24"	42"	24"	-----

Notes for Figure 31B-4 and Table 31B-4:

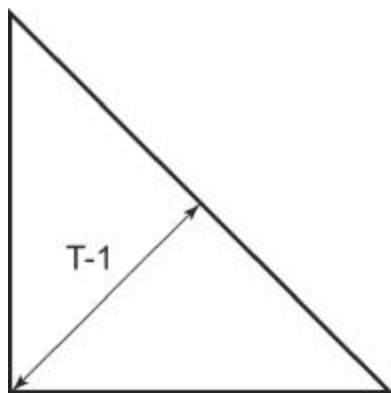
- (1) Bottom slope not to exceed 1:10 and must be uniform.
- (2) Bench ramping not to exceed 1:10 uniform slope, measured at the inner circumference of the bench.
- (3) Six inch minimum radius at "pinch points".
- (4) See Section 3111-B for step and handrail dimensions.

**Figure 31B-5**

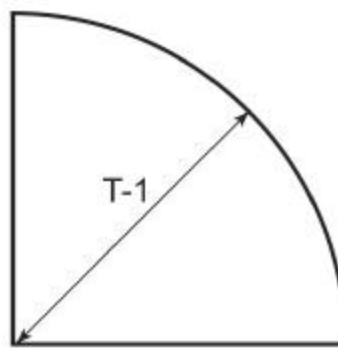
**Stair and Handrail Dimensions**



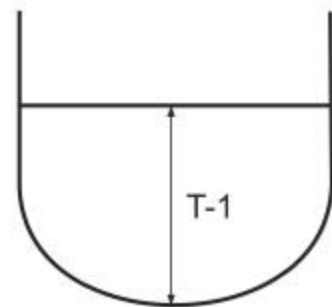
**Standard Step**



**Triangular Step**



**Convex Step**



**Concave Step**

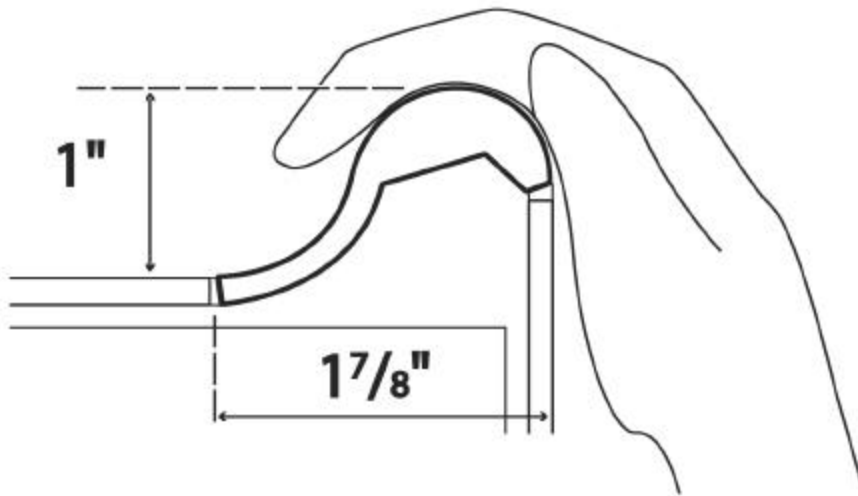
**Table 31B-5**

Dimensions	T-1 Standard	T-1 Triangular, Concave, Convex	T-2	T-3	W-1	H-1	H-2
------------	--------------	---------------------------------------	-----	-----	-----	-----	-----

<b>Minimum</b>	14"	21"	12"	3"	24"	6"	27"
<b>Maximum</b>	18"	24"	16"	---	---	12"	36"

**Figure 31B-6**

**HANDHOLD CONFIGURATION**

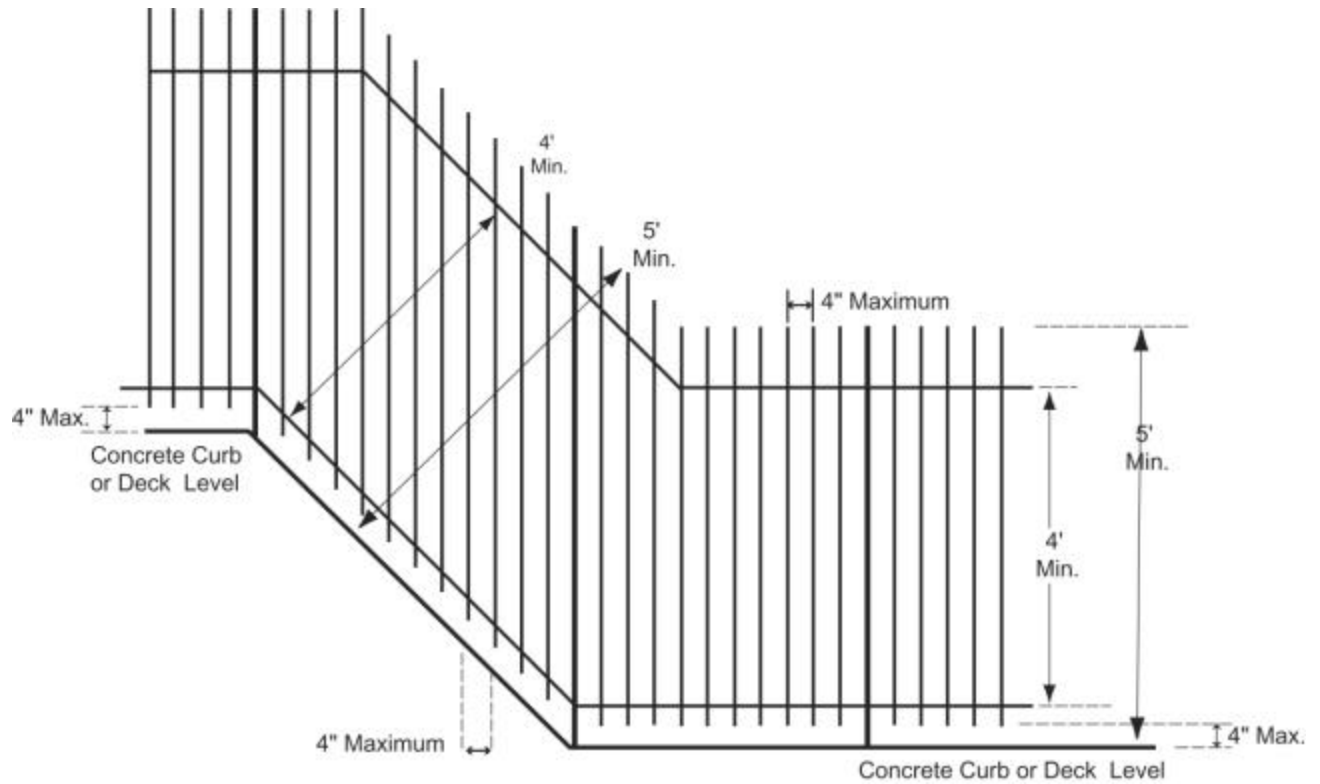


**Note: All dimensions are plus/minus 1/8**

## Figure 31B-7a

Perpendicular Fencing Dimensions

On Sloping Ground



## Figure 31B-7b

Effective Fencing Height

